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Commission Considers Forest Conservation

Regulations Formulated At Recent Wausau, Wis., Conference Taken Under Advisement and New Standards of Pulpwood Cutting Are Expected To Follow—Paper Mills Plan Outing—Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 3, 1942 — Regulations which were recommended for adoption at the forest products conference at Wausau, Wis., July 24 and 25, have been taken under advisement by the Wisconsin Conservation Commission and it is expected standards will soon be announced that all operators will be asked to follow.

Paper and pulp mills were liberally represented at the conference, where the selective cutting of pulpwood was extensively discussed. There was a difference of opinion as to whether regulations should be voluntary or compulsory. Manufacturers favored a voluntary code to save the forest areas from ruthless cutting, but the conservation commission believes the proposed practices should be mandatory.

Pulpwood Cutting Practices Proposed

Proposed cutting practices for pulpwood were that such pulpwood should be at least seven inches on the stump. F. G. Wilson, forester for the conservation commission, expressed the opinion that this would be acceptable except for white and Norway pine.

John E. Alexander, president of the Nekoosa-Edwards Paper Company, Port Edwards, Wis., presented a prepared paper, in which he refuted contentions that mills have been reckless in the use of forests. His company has spent considerable money within the last sixteen years, he said, to create a forest, on the premise that good paper made from good pulp is the paper mill's best salesman. His company is now faced with an increased fire hazard, he added, due to the discontinuance of CCC crews who were on call to fight fire. He advocated a system by which paid firefighters would be available, and that this would be a greater means of conserving pulpwood than any regulations which might now be adopted.

Experiences of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., were also set forth, following twelve years of development of private forests. Pulpwood operators and logging jobbers have been discouraged from cutting small and immature trees of various types. It has been found uneconomical to purchase small pulpwood "sticks," because it costs a great deal more for mills to work up and handle them than from the larger trees fully matured for pulp needs.

Assurance of a future pulpwood supply is shown by reports of the conservation commission. Its five nurseries have produced 133,534,000 for forest planting in the last five years. More than 2,000,000 acres of public lands have been planted for future forests.

Kimberly-Clark Golfers to Compete

Eighty-five golfers will compete in six flights arranged for the annual golf tournament of Kimberly-Clark Corporation employees, to be under way soon at Ridgeway Golf Club at Neenah, Wis. Some of the flights are named after executives of the company, F. J. Sensenbrenner, S. F. Shattuck, Ernst Mahler and Harry Price. The other two are K.C.A. (Kimberly-Clark Activities) and a new one named Victory. Pairings have been made with 15 men in each flight except the Victory, which will have 10.

Paper Mills Plan Outings

Employees of the Appleton Coated Paper Company, Appleton, Wis., will hold their annual picnic Sunday, August 9, at Telulah Park. A baseball game is being arranged between day and shift workers, and there will be games, contests, entertainment and refreshments.

A "barn dance" program will feature the annual picnic of Gilbert Paper Company employees at Smith Park, Menasha, Wis., Sunday, August 9. The event will utilize home talent for a stage program, which will be additional to a ball game and numerous other amusement features. Clarence Elmgren is serving as general chairman.

The annual picnic of employees of the Lakeview and Badger-Globe mills of Kimberly-Clark Corporation at Neenah, Wis., Sunday, July 26, drew an attendance of 1,500. The gathering was held at Lakeview park. Three half-hour shows were put on during the day and evening by WLS radio stars of Chicago, who are part of the National Barn Dance group. A softball game was played between the Lakeview and KCA teams and was won by the former, 3 to 2. A band concert also was furnished the picnickers.

Chicago Reports Market More Stabilized

Price Structure Firmer and Signs Appear To Indicate An Uptrend In Demand May Come Next Month—Merchants Boost Gift Box Requirements — Salesmen List Golf Winners — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 3, 1942—There were increasing signs that the local paper market might take a turn for the better within the next month as Chicago paper executives checked inventory stocks. At least, a semblance of stability was reported and prices were reported to be more firm. In general, however, the industry suffered from general business uncertainty and from a misunderstanding concerning the supply of paper on hand. Kraft papers were about the same as last week, comparatively slow. Sulphites showed little inclination to move though here and there were reports of some slight increase in interest in orders. Bonds and ledgers remained quiet while advertising papers remained most uncertain of the future. A plentiful supply of boxes was also reported. Waste papers remained little changed with prospects poor for some weeks to come.

Merchants Boost Gift Box Requirements

A recognition of the fact that the supply of paper is plentiful was made this week by the Chicago Retail Merchants Association which removed a 50% limitation on the use of gift boxes which was placed on members earlier in the year when "conservation" sentiment was at its height. Some indication of the fact that this earlier publicity is genuinely hurting the paper trade and, in this case, the folding box industry in particular, is found in the statement that the Association might have broadened the use of gift boxes in the big down town Chicago stores had not curtailed plans already being made which could not be changed. The stores will continue to use boxes in plain or monotone colors and these boxes will be of the type which will be used the year around. In other words, the earlier expectations of box shortages caused the big retailers to abandon the idea of fancy special Christmas gift boxes and, out of a desire to be fair to all members and to perpetuate the agreements made, they intend to stick to their previous position. New boxes will be purchased, plenty of them—and particularly with the 50% restriction removed. But they will not be of the "fancy" type and of a character and color that will make them acceptable as "gift boxes" the year around. It is noteworthy, too, that the merchants were slow to believe the news that boxes were so plentiful. This will give the paper industry a cue to the job it has ahead of overcoming previous publicity by new efforts to acquaint buyers with the actual facts about the supply of paper, the employment problem, inability to convert to war time production of other goods, which accentuates that problem, and other factors.

Analyze Waste Paper Condition

The waste paper dealers in the Chicago area expect no marked change in local conditions during the month of August. Movement of paper, the Journal of Commerce reported, is about even while the shortage of bags causes prices to hug the ceiling. Bag dealers predict an increase in flow in the near future as a result of an expected order compelling dumpers to sell bags more frequently. This added flow was not expected, however, to affect prices. Paper dealers originally expected continuance of the decline in prices which started in April when stocks mounted under stimulus of a nationwide advertising campaign while mill demand fell off along with failure of the government to come through with plans for a wider use of paperboard. Inability to find the shipping space in which to put commodities packaged in paperboard is a factor reported to have caused the change in government plans. At the same time, demand for paper by consumer goods industries has declined considerably. This condition has been offset by a lowering of prices which has discouraged collections and dealers have likewise discouraged collections. As a result prices are now expected to remain at the present level unless a sustained improvement in business takes place. Pickup in demand, say local dealers, may result from increasing use of dehydrated foods by the armed forces and from the switch in dog food from cans to cartons.

Salesmen Announce Golf Winners

Prize winners among the sixty salesmen and guests attending the July 24 golf outing of the Salesmens Association of the Paper Industry have been announced by Ray George of Tomahawk. The event was held at the Knollwood Country Club near Highland Park. Low gross winner was Courtney Reeves of the Allied Paper Mills, former golf chairman and present top executive of the salesmens group. First low net of 17 and under was won by Hank Fulton of Blunden-Lyon. Other winners are as follows: Second low net (17 and under) R. C. Swan, Champion Paper & Fibre Company; third low net, F. B. McFarland, Port Huron Sulphite; low putts, first nine, A. L. Brown, Nekoosa-Edwards; low putts second, nine, Bert Wales; low net, first nine, Stub Early of the International Paper Company; low net, 2nd nine, Gene Clifford, Bermingham & Prosser. The high gross foursome was composed of Jim Coy, E. E. Vallier, George Moss and C. T. Roos. Low net foursome winners were R. C. Swan, A. L. Brown, F. Swatek and Irving McHenry. Low putt foursome winners were G. Bueller, A. L. Brown, S. Early, Gene Clifford.

Urge Year Around Waterway Operations

Of some interest to the paper industry is the news that the Illinois Council of Defense has asked the Navy to keep the Illinois waterway ice free and navigable during the entire winter. The value of the waterway as an essential marine waterway between the Great Lakes and the Mississippi river has been pointed out. The sheltered and protected nature of the route has also been mentioned in favor of the waterway both for war and for commercial transportation, some of which is to the benefit of certain divisions of the paper industry. An estimated 10,000,000 tons of shipping will be carried this year.

Priorities Regulation No. 10

Chart Explanation

By E. Glenn Amos[1]

The Priorities Regulation chart was drawn to show in graphic form how a mill, manufacturing paper, can develop its symbols to use in connection with its orders. We have taken a number of examples and worked them through so that any mill or manufacturer can easily substitute his own case on the chart. For example, a jobber or wholesaler can be easily substituted for the merchant or distributor, etc.

In the example taken, the XYZ Paper Company has eleven customers. On the lines leading to these customers, Blocks One to Eleven, you will find the percentage of the mill's business that went to each. The same is true of the customers' customers. In the case taken, Customers Nos. 2-6-8-9 and 10, the paper went no further, but was consumed by that particular buyer. In the case of the other customers Nos. 1-3-4-5-7 and 11, the business was split up and sold to others. We appreciate that in actual practice there would be many more customers but the principle would be the same although the resultant percentages will be smaller in most cases.

We will take the mill's customer No. 3 for an example and explain how we arrived at our final compilation in Block 52.

[1] Staff Member, American Paper and Pulp Association, New York, N. Y.

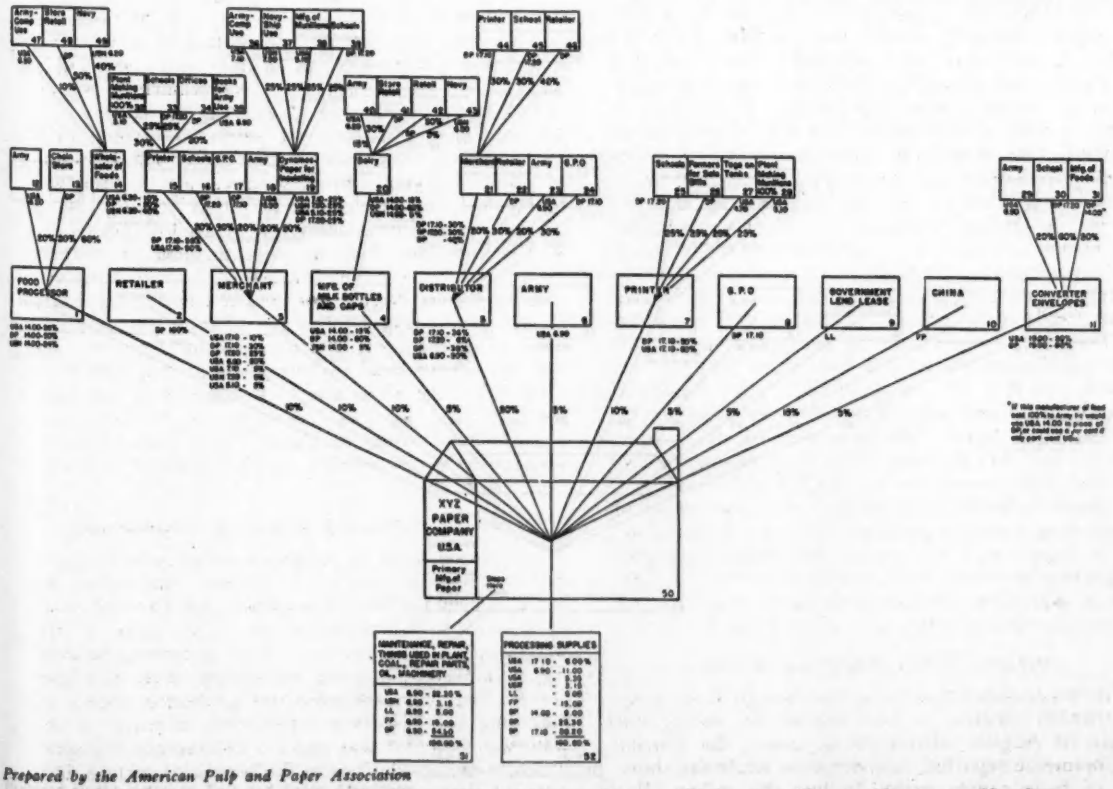
In the case of No. 3, 10% of the mill's business went to this merchant. (This might be a jobber, wholesaler, or distributor.) The merchant (Block 3) had five customers, each of whom took 20% of the merchant's paper. The printer (Block 15) had four customers: a munitions plant that took 30%, a school board that took 25%, an unclassified business office that took 25%, and the Army purchased the balance, or 20%, in the form of instruction booklets.

On the order of the munitions plant (Block 32) the manufacturer of munitions placed U. S. A. 5.10, since he was 100% engaged in the making of munitions, which consisted of 20 mm. shells, and was under contract to the Army. He puts U. S. A. on his order even though the paper itself did not become a part of the shells, but since he is under contract to the Army, he uses the U. S. A. symbol. (If 50% of his business was under Army contract, and the other 50% civilian use, he would put on his order the following: D.P.—50%, and U.S.A. 5.10, 50%.)

The school board (Block 33) put D.P. 17.20 on their order, this being for civilian use.

The office order (Block 34) carried D.P. and no number since the business was not classified and had no allocation number.

The Army order (Block 35) carried the symbols



Prepared by the American Pulp and Paper Association

CHART SHOWING HOW A PAPER MANUFACTURER WOULD USE THE SYMBOLS RECEIVED BY HIM IN MAKING UP HIS ORDERS.

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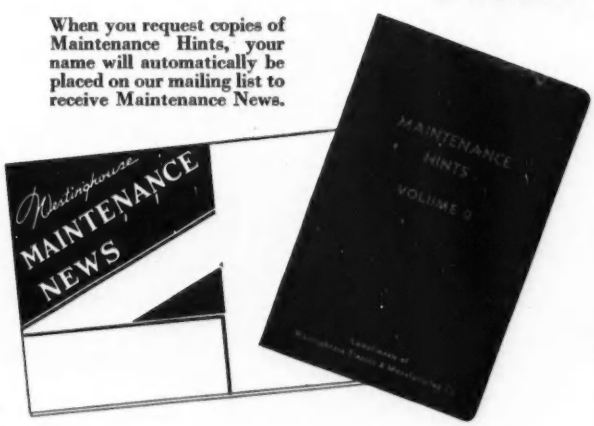

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TIME SAVER FOR AMERICAN INDUSTRY

U.S.A. 6.90 since books for Army use carry that number.

The printer (Block 15) therefore, received the following symbols and numbers from his customers:

U. S. A.	5.10
D. P.	17.20
U. S. A.	6.90

The printer (Block 15) however, has a number assigned to him which he uses on all his orders—17.10. Therefore, on his order to the merchant, he put the following:

D. P.	17.10	50%
U. S. A.	17.10	50%

You will note that 30% and 20% of the printer's business carried the symbols U.S.A., and the other 50% carried the symbol D.P. You will note also the letters are passed on by the printer, but the numerals are changed.

The merchant (Block 3) also sold directly to schools (Block 16) and on this order he received D.P. 17.20.

The merchant (Block 3) also sold to the Government Printing Office (Block 17) and on this order, he received D. P. 17.10. In the example, he gave the merchant a D. P. 17.10 since none of the printing by the G.P.O. went to the Army or the Navy. If it had, he would have had a breakdown showing the percentage of U.S.A. or U.S.N. business when he transmitted his order to the merchant.

The merchant (Block 3) also sold paper direct to the Army, and on this order he received a U.S.A. 6.90, since it was for supplies.

The merchant (Block 3) also sold some paper to a manufacturer of dynamos (Block 19), who purchased the paper to be used for insulation purposes. The dynamo manufacturer sold his products as indicated to Blocks 36 to 39, inclusive.

The dynamo manufacturer, having no number of his own, passes on to the merchant the following:

U. S. A.	7.10	25%
U. S. N.	7.50	25%
U. S. A.	5.10	25%
D. P.	17.20	25%

When the merchant has received all his orders, and figured out that 20% went to each customer, he found that his business totalled as follows:

U. S. A.	17.10	10%
D. P.	17.10	30%
D. P.	17.20	25%
U. S. A.	6.90	20%
U. S. A.	7.10	5%
U. S. N.	7.50	5%
U. S. A.	5.10	5%
		100%

This compilation he put on his order to the XYZ Paper Company, and it was, as shown in the example, 10% of the mill's business.

The other customers worked out their symbols and numerals in the same fashion, and transmitted them to the mill. The mill, in totalling up its business, found that it had the following:

Customer No. 1	U. S. A. ..	14.00	2.6%	
	D. P.	14.00	5.0%	
	U. S. N. ..	14.00	2.4%	
				10% of mill's business
Customer No. 2	D. P.	....	10.0%	10% of mill's business
Customer No. 3	U. S. A. ..	17.10	1.0%	
	D. P.	17.10	3.0%	
	D. P.	17.20	2.5%	
	U. S. A. ..	6.90	2.0%	
	U. S. A. ..	7.10	.5%	
	U. S. N. ..	7.50	.5%	
	U. S. A. ..	5.10	.5%	
				10% of mill's business
Customer No. 4	U. S. A. ..	14.00	.75%	
	D. P.	14.00	4.00%	
	U. S. N. ..	14.00	.25%	
				5% of mill's business
Customer No. 5	D. P.	17.10	7.20%	
	D. P.	17.20	1.20%	
	D. P.	....	7.60%	
	U. S. A. ..	6.90	4.00%	
				20% of mill's business
Customer No. 6	U. S. A. ..	6.90	5.00%	5% of mill's business
Customer No. 7	D. P.	17.10	5.00%	
	U. S. A. ..	17.10	5.00%	
				10% of mill's business
Customer No. 8	D. P.	17.10	5.00%	5% of mill's business
Customer No. 9	L. L.	....	5.00%	5% of mill's business
Customer No. 10	F. P.	....	15.00%	15% of mill's business
Customer No. 11	U. S. A. ..	19.00	1.00%	
	D. P.	19.00	4.00%	
				5% of mill's business
				100%

From the above compilation, the mill adds together those that have the same identical symbols and numerals and finds that it has the following:

U. S. A.	14.00	3.35%	(1)
D. P.	14.00	9.00%	(2)
U. S. N.	14.00	2.65%	(3)
D. P.	....	17.60%	(4)
U. S. A.	17.10	6.00%	(5)
D. P.	17.10	20.20%	(6)
D. P.	17.20	3.70%	(7)
U. S. A.	6.90	11.00%	(8)
U. S. A.	7.10	.50%	(9)
U. S. N.	7.50	.50%	(10)
U. S. A.	5.10	.50%	(11)
L. L.	....	5.00%	(12)
F. P.	....	15.00%	(13)
U. S. A.	19.00	1.00%	(14)
D. P.	19.00	4.00%	(15)
		100.00%	

Some of the above, you will note, are less than 5% of the total and they should, according to the book of instructions on page 4, under (4) b, 3, be prorated among the classifications which are 5% or more. We understand, however, that these instructions will be changed, so that a mill will not lose the customer's symbols that are less than 5%.

So instead of prorating those items under 5%, it is our understanding that mills may disregard the numerical classifications and add together the U.S.A.'s, U.S.N.'s, L.L.'s, and F.P.'s that are under 5% and pass on this information.

Following the same reasoning, we added together the D.P.'s that were under 5% and added them to those we already had in our compilation. Thus, in the above example, we finally arrive at the following:

U. S. A.	17.10	6.00%	(Line 5)
U. S. A.	6.90	11.00%	(Line 8)
U. S. A.	....	5.35%	(Lines 9, 1, 14, and 11)
U. S. N.	....	3.15%	(Lines 10 and 3)
L. L.	....	5.00%	(Line 12)
F. P.	....	15.00%	(Line 13)
D. P.	14.00	9.00%	(Line 2)
D. P.	....	25.30%	(Lines 4, 15, and 7)
D. P.	17.10	20.20%	(Line 6)
		100.00%	

The above are the symbols and allocation classification numerals the mill will use on its orders for processing supplies for the period in question. (See Block 52)

For maintenance and repair items and operating supplies, however, the mill will use its own number 8.90 in combination with its customers' letter symbols.

In adding the U.S.A.'s together, U.S.N.'s, etc., the mill finds that it has the following pattern to put on its orders for those materials that stop in the plant or its operating supplies (See Block 51)

U. S. A	8.90	22.35%
U. S. N.	8.90	3.15%
L. L.	8.90	5.00%
F. P.	8.90	15.00%
D. P.	8.90	54.50%
		100.00%

The letters, or customers' symbols, are never changed from start to finish. However, the numerals may change, and do in several instances. For example, the printer has 17.10 assigned to him which

he uses on all his orders. The envelope manufacturer uses 19.00, while the food processor uses 14.00.

In case any customer (Block 3, for example) found he had some orders which were less than 5% of his business, he would make the combinations in the same way that the mill did in making up its final pattern.

You will note in Block 51, we use the purchasers' symbols, such as U.S.A., U.S.N., etc. We were first instructed to use only D.P. 8.90, but we are now instructed to use the customers' symbols as shown in the chart.

To Manage National Safety Council

Ned H. Dearborn, of New York City, has been named executive vice-president and managing director of the National Safety Council. He succeeds W. H. Cameron, who is retiring after almost 30 years as managing director of the council.

Mr. Dearborn's appointment was announced by Col. John Stilwell, president of the council, following a meeting of the executive committee.

Since 1934, Mr. Dearborn has been dean of the division of general education of New York University, a post he now leaves.

In his new position he will actively direct the greatly expanded wartime program now being conducted by the National Safety Council as a result of a proclamation by President Roosevelt.

Necessary funds for this enlarged program—aimed at stopping accidents that are impeding production and delaying victory—now are being obtained from commerce and industry by the Council's War Production Fund to Conserve Manpower.

An initial appropriation of $250,000 from this fund will be made available to the Council for immediate development of this wartime safety program, Colonel Stilwell said. An additional $1,000,000 already pledged, will be allocated within the next few months. A goal of $5,000,000 has been set to meet the minimum needs of the expanded program.

Power Decision to be Made in Month

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 3, 1942—Power Controller H. J. Symington announced Thursday that a decision will be made in about a month's time as to whether it will be necessary to curtail power being used by newsprint plants in three large areas in Ontario and Quebec.

The areas concerned are Thorold, Ont., and Saguenay and St. Maurice districts in Quebec. "This whole big problem is being considered from the standpoint of meeting next winter's power requirements for war industries," Mr. Symington said. "We are most desirous, also, of causing the least possible disturbance to the newsprint industry. No decision has yet been made and will not be reached for at least a month. This question has to be discussed further with the paper industry and with the power people before we can reach any final conclusion. The whole matter is dependent upon the anticipated power requirements of war industry. Undoubtedly, at the present time, there is an acute shortage of power in the Thorold, Saguenay and St. Maurice areas and we are doing our best to find ways and means of meeting the problem without injury to the newsprint industry," he said.

Obituary

Frank S. Dunham

Frank S. Dunham, associated with The Permutit Company in the sale of water conditioning equipment for approximately 25 years, died in Chicago July 23.

Mr. Dunham was born in Baltimore, Md., on March 8, 1876, and he began his engineering studies at the Armour Institute of Technology and completed his work in chemical engineering at the University of Chicago. His early career in engineering began with the Hydrox Corporation of Chicago, which he joined following his graduation from the university. Subsequently, he was a chemical engineer with the Kennicott Company, manufacturers of water softening equipment, until he became associated with The Permutit Company. He remained with The Permutit Company until his retirement in 1940.

Mr. Dunham served as a captain in the Illinois National Guard, and was a veteran of the Spanish-American War.

He is survived by his widow, Mrs. Edna Alice Dunham, and two sisters.

H. T. Disbrow

Hamilton T. Disbrow, chairman of the board of directors of Coy, Disbrow & Co., paper brokers, 686 Greenwich street, New York, died at Summit, N. J., Saturday, July 25, of a heart ailment in his home, 34 Elm street. He was eighty-nine years old, a native of New York.

Mr. Disbrow was regarded in the paper trade as one of the oldest paper salesmen, having devoted more than fifty years of his seventy-four-year business career to his business. He was an organizer in 1898 of the firm of Coy Hunt & Co., paper brokers, now at 425 Fourth Avenue, and served until 1924 as an officer of the firm. He organized Coy, Disbrow & Co. in 1924 and was president of the firm for several years.

Henry Streibert

Henry Streibert, retired Albany, N. Y., paper merchant and for many years a leader in social welfare work, died July 28 at his home. He was 82 years old. He was head of the Streibert Paper Company, and for many years was president of the Albany City Mission. Surviving are two sons, two daughters and eight grandchildren.

C. B. Hall Leaves Latex Industries

[FROM OUR REGULAR CORRESPONDENT]

BEAVER FALLS, N. Y., August 1, 1942—Charles B. Hall has resigned as technical supervisor with the Latex Fiber Industries in order to take a position as a production supervisor at a government plant being constructed at Williamsport, Pa., which will be operated by the United States Rubber Company. He plans to take a training course at the Kanakee Ordnance Works in Illinois before assuming his new duties. Mr. Hall was brought here in the winter of 1934 as a development chemist and has been in the employ of the local concern for about eight years. Prior to that time he was employed as a chemist with the Newburgh plant of E. I. du Pont de Nemours & Co. He graduated from Boston University in 1925.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1942—The Government Printing Office has received the following bids for 7,262 pounds of 75% rag, 23 x 36 yellow ledger paper: R. P. Andrews Paper Company, 16.82 cents; Butler Company, 20 cents; Central Ohio Paper Company, 20 cents; Graham Paper Company, 16.82 cents; Mudge Paper Company, 19.16 cents; Old Dominion Paper Company, 19.37 cents; Paper Corp. of U. S., 19.47 cents; Paper Merchants, Inc., 20.4 cents; Frank Parsons Paper Company, 19 cents; Perkins-Goodwin Company, 20.45 cents; Walker Goulard Plehn Company, 21.5 cents; Wilcox Walter Furlong Paper Company, 19.8 cents; Whitaker Paper Company, 20 cents; Bradner Smith & Co., 18.39 cents; Bulkley Dunton Company, 20 cents; Bermingham & Prosser Company, 20.37 cents; Coy Hunt & Co., 22.48 cents; Collins Manufacturing Company, 18.25 cents; D. L. Ward Company, 18.25 cents; and Whiting Paper Company, 19.5 cents.

For 673,750 pounds of white supercalendered book paper in 56 inch rolls: Mudge Paper Company, 4.78 cents; R. P. Andrews Paper Company, 4.79 cents; Marquette Paper Company, 5.29 cents; Whitaker Paper Company, 5.69 cents; Old Dominion Paper Company, 6.827 cents; Frank Parsons Paper Company, 5.35 cents; and Graham Paper Company, 5.17 cents.

For 239,000 pounds of white supercalendered book paper in 28 inch rolls: Mudge Paper Company, 4.78 cents; R. P. Andrews Paper Company, 4.79 cents; Marquette Paper Company, 5.35 cents; Whitaker Paper Company, 5.93 cents; Old Dominion Paper Company, 6.997 cents; Stanford Paper Company, 5.03 cents; and Graham Paper Company, 5.43 cents.

For 69,674 pounds of 39 x 56½ offset book paper and 119,480 pounds of same 39 x 63¾: R. P. Andrews Paper Company, 5.08 cents; Cauthorne Paper Company, 5.19 cents; Frank Parsons Paper Company, 5.5 cents; and Marquette Paper Company, 6.45 cents.

For 25,000 sheets of 100½ rag, 32 x 42 white writing paper vellum finish: Whiting Paper Company, 29.25 cents; R. P. Andrews Paper Company, 21.24 cents; Whitaker Paper Company, 28 cents; Mudge Paper Company, 21.24 cents; Barton, Duer & Koch Paper Company, 20.95 cents; and Stanford Paper Company, 26.4 cents.

For 865,000 pounds of 38 x 48 supercalendered book paper: R. P. Andrews Paper Company, 5.01 cents; Central Ohio Paper Company, 5.71 cents; Graham Paper Company, 6.15 cents; Marquette Paper Company, 5.69 cents; Old Dominion Paper Company, 7.0498 cents; Paper Corp. of U. S., 6.04 cents; Stanford Paper Company, 5.43 cents; Whitaker Paper Company, 5.73 cents; Wilcox Walter Furlong Paper Company, 5.71 cents; Bulkley Dunton & Co., 4.945 cents; Mead Sales Company, 5.68 cents; Bermingham & Prosser Company, 5.84 cents; Coy Hunt & Company, 5.71 cents; and Frank Parsons Paper Company, 5.65 cents.

For 334,680 sheets of 22⅛ x 34½ white cloth lined cover paper: Middlesex Products Corporation, $103.50; Stanford Paper Company, $103.50 per M sheets; Mudge Paper Company, $105.40; Barton, Duer & Koch Paper Company, $105.40; Bradner Smith & Co., $104.99; Baxter Paper Company, $106.40; Wilcox Walter Furlong Company, $103.50; Garrett-Buchanan Company, $108.56; Whitaker Paper Company, $105.40; Butler Company, $105.38; and Central Ohio Paper Company, $106.45.

For 6,000 sheets of 100% rag fine writing paper: Barton Duer & Koch Paper Company, $12.50 and $15.00 per M sheets; Whitaker Paper Company, $11.20 and $13.55 per M sheets; Virginia Paper Company, $12.50 and Garret-Buchanan Company, $13.64.

For 1,064 pounds of 35 x 45 golden rod coated book paper: Mudge Paper Company, 14.19 cents; Barton, Duer & Koch Paper Company, 12.9 cents; Whitaker Paper Company, 14.15 cents; and Stanford Paper Company, 12.9 cents.

H. M. Gray in Washington Office

E. W. Tinker, executive secretary of the American Paper and Pulp Association, has sent out the following announcement:—"It is with the greatest regret that we announce the resignation of John F. Darrow, who has been in charge of our Washington office, from the start of that office. Many of you are personally acquainted with Mr. Darrow and I know you will share our regret, not only because of the loss of a very effective man but of a highly regarded friend. After August 1, Mr. Darrow will be working in the Quartermaster's Corps in Washington.

"Henry M. Gray has been employed to replace Mr. Darrow. Mr. Gray has had many years of experience in the paper industry and more recently has been employed as a consultant in the Pulp and Paper Section of the Office of Price Administration. His knowledge of the industry and of Washington procedures should enable him to carry on the services of the Washington office of the association, to the industry, with maximum effectiveness. It is our hope that you will continue to use the facilities of the office when of advantage."

Norway's Pulp Needs Cut

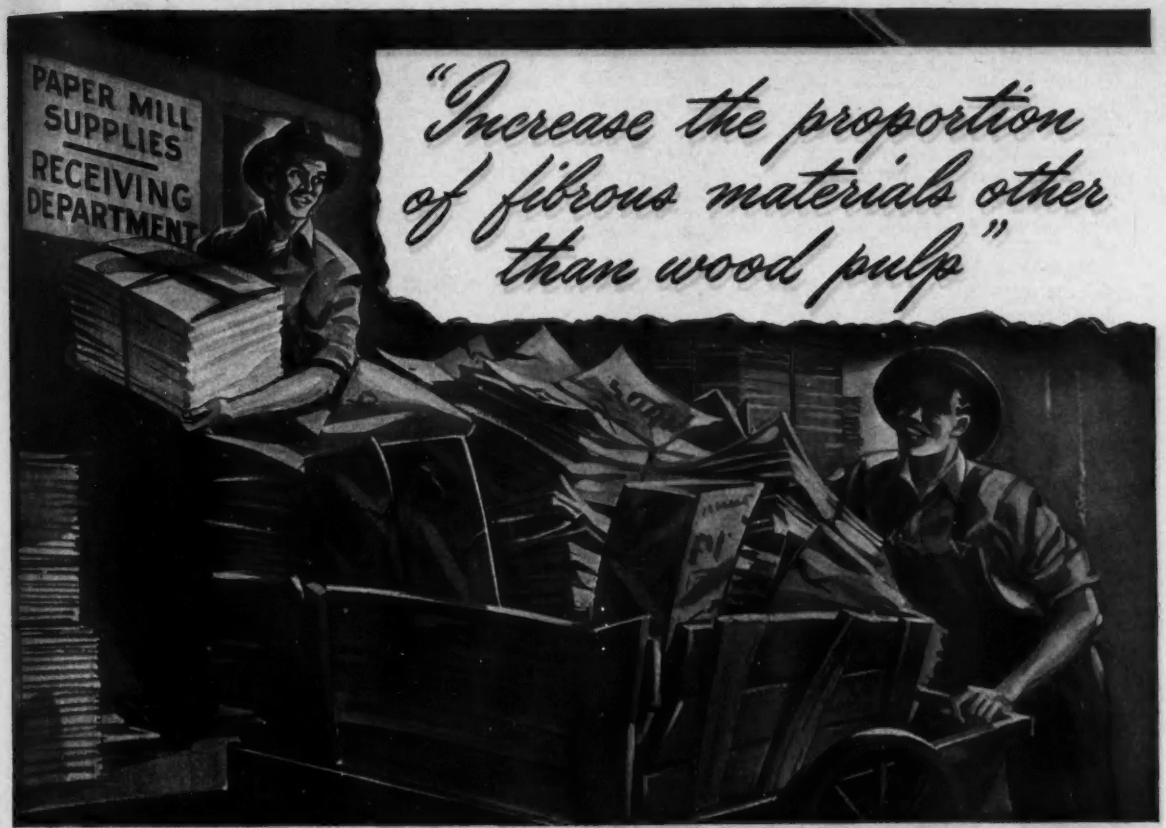
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1942—Norway's wood pulp requirements suffered drastically during 1941, and supplies will be further cut to less than one-half normal this year according to unofficial information reaching the Department of Commerce. Lumber in increasing amounts is being used by German occupying forces for airdromes and barracks.

From total supplies of 7,000,000 cubic meters of lumber, only 2,000,000 cubic meters are allocated to the pulp industry, and the figure is expected to fall still more. Sawn timber for German use will take the remaining 5,000,000 to 6,000,000 cubic meters.

Great quantities of lumber are being stored at present airdromes, to be used in filling bomb craters and for other emergency uses.

The report states that Norway exported 1,900,000 cubic feet of lumber for cellulose to Germany last year, drawing upon Norway's own needs to 1,300,000 cubic feet. Dispatches indicate that an even worse situation is expected to prevail this year.



"Increase the proportion of fibrous materials other than wood pulp"

MANY PAPER MANUFACTURERS are having trouble in complying with Government requirements for increased production of paper and board from a curtailed allocation of wood pulp. They are obliged to increase the proportion of reclaimed paper and other low grade raw stock in their beaters. They can produce more sheetage only by reducing base weights. Both alternatives add to the difficulties of machine operation. Hamilton Felts materially reduce these difficulties. By removing more water at the wet end of paper machines, Hamilton Felts deliver firmer, better formed, stronger sheets to the driers. Even though these sheets contain a larger proportion of fibrous materials other than wood pulp there is less broke. Stops for adjustment are fewer. The finished product is the best that can be made from the available materials.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

Buy Interest in Holland Paper Co.

Francis W. Howe, executive vice president of the Hubbs & Howe Company announced recently that they have acquired a substantial interest in the Holland Paper Company of Buffalo, N. Y.

Robert H. Alexander, president and treasurer of the Holland Paper Company, has joined the Armed Forces of the U.S.A. and has resigned his position and will not be active in the company for the duration of the war.

The Holland Paper Company is one of the oldest fine paper distributors in Buffalo and enjoys an enviable reputation in Western New York and Pennsylvania. They represent the following companies:—Albemarle Manufacturing Company, Martin Cantine Company, Champion Fibre and Paper Company, Esleeck Manufacturing Company, Hammermill Paper Company, J. P. Lewis Company, Miller's Falls Paper Company, Neenah Paper Company, Whiting-Plover Paper Company, Parsons Paper Company, McLaurin-Jones Company, Peninsular Paper Company and other well known advertised mill brands of fine paper.

Prominent in the Holland Paper Company at present are Paul F. Dorris, vice president; Willard Blake, vice president; Don Smith and Mr. Zangerle. It is planned to have same personnel continue under the new management; however, new salesmen will be added and many new lines are under consideration to make the Holland Paper Company facilities complete in every respect.

The new officers and directors of the Holland Paper Company will be announced shortly.

The Holland Paper Company maintains offices and warehouse at 202 Washington Street, Buffalo, N. Y., and will continue to operate at that location. The company will operate at that location as a separate organization.

To Eliminate Cross Hauling of Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Aug. 5, 1942—The Pulp and Paper Branch announced today that as the result of a survey of a large segment of the pulp and paper industry, steps have been taken to bring about a transportation saving during August of an estimated 100,000 car-miles through elimination of cross-hauling of wood pulp.

This saving, the Branch said, will result directly from the interchange of Eastern and Western book and bond grade bleached sulphite pulp. In the allocation of pulp for August under General Preference Order M-93, it was found possible to divert shipments to prevent the cross-hauling of approximately 2,500 tons of this grade of pulp in each direction across the country.

The Branch estimated that the diversion will result in a saving of 100,000 car-miles this month in book and bond grade shipments alone. Surveys are being made to determine the interchangeability of other grades.

Previously, a considerable quantity of wood pulp produced in the Pacific Coast area has been moved by rail across the country as far as New England. Pulp produced on the Eastern seaboard has been shipped to consumers in the Mid-West. While these pulps do not have identical characteristics, they are interchangeable for many purposes.

In its efforts to eliminate cross-hauling and thus conserve transportation facilities, the Branch acted on recommendations made by the Transportation Committee of WPB. The pulp and paper industry, in addition to seeking ways to interchange Eastern and Western pulp, is contributing to the program, the Branch said, by seeing to it that all freight cars used carry maximum loads.

May Not Charge for Paper Cups

Merchants and others selling beverages in paper cups or paper containers were warned today by the Office of Price Administration to discontinue the recent practice of charging consumers a separate price for these cups if no charge was made for them during March.

Many complaints received by OPA indicate that some operators of drug-store soda fountains and lunchrooms are violating the provisions of the General Maximum Price Regulation by charging one cent for each cup in addition to the price for the drink. Unless the charge for the paper cup was made in March, the merchant cannot add it now.

Under the provisions of the General Maximum Price Regulation the maximum retail price for paper cups now is the highest price for which they were sold in March. This interpretation affects paper cups or containers given away with beverages consumed on or off the merchant's premises.

R. N. Griswold To Cover Miami Valley

Robert N. Griswold has been appointed sales representative of Heller & Merz Department to cover the Miami Valley and Southern territories formerly so ably handled by Elton L. Puffer, deceased.

Mr. Griswold joined the Calco organization in Chicago in 1935 as technical and sales representative after several years in the dyestuff field.

A graduate of University of Wisconsin, Mr. Griswold received his degree in 1932 in Chemical Engineering.

He was born in Madison, Wisconsin.

Mr. Griswold is married and the father of two children. His home has been in Glencoe, Ill.

Fire Causes Slight Damage at Fitchburg

[FROM OUR REGULAR CORRESPONDENT]

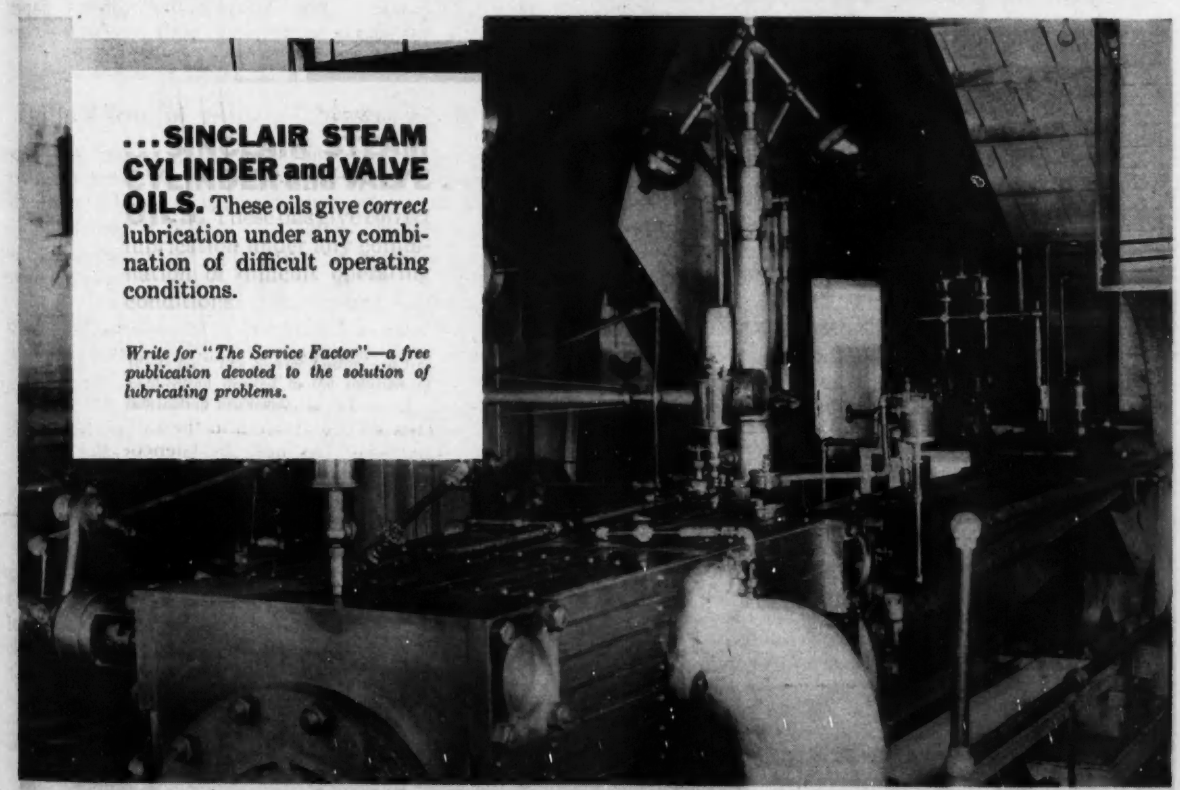
FITCHBURG, Mass., July 27, 1942—Fire in the sulphite pulp pile in the beater room of the No. 4 mill of the Fitchburg Paper Company on the night of July 23 caused damage estimated by company officials at more than $5000 and gave firemen a three hour battle.

The fire is believed to have started by spontaneous combustion in the center of the 50-ton pile of bales. It filled the big plant with acrid smoke.

K. R. Watt Goes With Curtis Paper Co.

Kingdon R. Watt, former chemist of Crocker McElwain Company, Holyoke, Mass., is now associated with the Curtis Paper Company of Newark, Del. He is a graduate chemical engineer of Northeastern University and has spent the past five years with Crocker McElwain Company in charge of the laboratories, control, and mill research.

POWER TO WIN depends on horsepower. For development of full designed power output from *STEAM ENGINES* use . . .



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A New Chemical—K-121-B

Due to the complexity of dyes and colors used in rags for paper manufacturing, removal of which is imperative without excessive degradation of the stock, lime and caustic, as such, are not efficient enough to do the job satisfactorily, used however in connection with a wetting and reducing agent such as K-121-B, the results show considerable improvement and merit.

K-121-B acts both as a wetting agent and reducing agent and users are securing good results with this chemical in combination with lime, caustic (or other alkalies) depending upon the nature of the dyes and colors to be removed.

To obtain maximum color removal and minimum degradation of stock, it was found in practice, that the spent liquor from the cooker should have a pH of not less than 11. This condition can be accomplished by the use of lime, caustic and K-121-B.

Due to the stability of K-121-B at high temperatures, it is ideally suited for the role of wetting, carrying and reducing agent. It prevents excessive redepositing of color at the end of the cook and by its buffer capacity, prevents degradation of fibre by alkalies during the cook. This buffing effect eliminates the need for any other reducing agent as "assists" in removal of color. The treated, or cooked stock, washes out more readily and has a lower bleach demand.

Similar procedure is being used in preparation of straw. In this case, the stability of K-121-B and its power as a wetting agent is used to lower the alkali demand in the cooking process. This results in a lower pH, gives a cleaner stock, and the washing cycle can be shortened which saves water.

Definite advantages are gained in deinking of bond and ledger stock, particularly stock that does not contain in excess of 3% ground wood. A cleaner, brighter stock is being obtained by the use of caustic and K-121-B. In many cases, where modern washing equipment is used, the need for bleach is eliminated.

Another new chemical K-140, was recently introduced for the deinking of ground wood stocks. K-140 in conjunction with caustic at temperatures up to 212 degs. F. shows only traces of conversion of ground wood fiber. The same amount of caustic used for deinking ground wood stocks without the presence of K-140, results in a yellow stock. When K-140 is used in conjunction with caustic, the finished pulp has the color of new ground wood and the bleach demand is consequently lower.

K-121-B and K-140 have been found by users to be of value to the paper manufacturers.

Oil Loin Papers Regulated

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1942—OPA has announced that oil loin papers, mainly used by packers in packaging large parcels of meat, are now under the provisions of maximum price regulation No. 129.

This action is effective through the issuance of amendment No. 7 to maximum price regulation No. 129 and the definition of waxed papers as set forth in the regulation has been broadened to include loin papers, which are usually produced by manufacturers of waxed papers and the amendment became effective August 5.

Esco Awarded Navy "E"

The Navy "E" Pennant, which Secretary of the Navy, Frank Knox, states has for nearly 40 years been the Navy's symbol of a job well done, has been awarded to the Electric Steel Foundry Company, Portland, Oregon.

Governor Charles A. Sprague addressed employees of the concern and Acting Mayor, William A. Bower, made the address of welcome to Rear Admiral Charles W. Fisher, who presented the pennant to C. F. Swigert, Jr., president of the concern.

The presentation program, held in the company's yard, was attended by about one thousand persons

REAR ADMIRAL FISHER PRESENTING THE NAVY "E" TO C. F. SWIGERT, JR.

and was supplemented with appropriate band music.

Navy "E" pins were presented to several of the employees with long service records.

In Mr. Swigert's speech of acceptance, he said in part that, "What we have accomplished is not the work of any one man . . . to a large extent this is the result of the excellent work of your Shop Committee . . . One way we might improve our service is in paying attention to preventing waste. . . . There are not enough materials to go around. From now on we will have to pay attention to not only turning out all the work we can but to seeing that we don't waste anything at all in doing it."

Business Slack in Philadelphia

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 3, 1942—While at this time of the year, equipment repairs which are given customary consideration, contribute to the letdown, the sloughing off very materially affected some mills with heavy order backlogs. With the further shrinking of order backlogs, the paper industry was feeling the decline of new buying from the peak reached several months ago. One executive in a leading paper house here, who can be depended upon, states that paper board mills reported new bookings of only 103,559 tons, compared with 168,431 in the 1941 week, and that an operating rate of 67% in paper mills was the lowest for any full week since 1938.

THIS WILL *Always* BE!

Wonder of the Western World—Niagara Falls has been called. And not by accident but apparently by design is it located here in America. Its thunder is the thunder of a people who have strength and happiness in freedom. Its movement is the restless, surging movement of men who feel a deep compulsion to go forward in history. Its power is resistless—and cannot be stemmed.

Those pioneers who first glimpsed the stately grandeur of Niagara saw in its rainbow the promise of a new world where peace and opportunity could be found. The rainbow is still there, and the peace and opportunity which America has given to millions are treasured beyond price. In a world where freedom is being crushed, Niagara symbolizes everything which this country means—strength, abundance, steadfastness. It is a limitless fountainhead of power which can be transformed into energy that brings good to all.

We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of Chemicals for Victory.

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PARA · CARBONATE OF POTASH
LIQUID CHLORINE

FROM THE ORIGINAL BY ADOLF DEHN . . . IN NIAGARA ALKALI COMPANY'S COLLECTION OF PAINTINGS OF NIAGARA FALLS

Niagara ALKALI COMPANY
60 EAST 42nd STREET, NEW YORK, N. Y.

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Productions Board. The status of projects reported herewith under the provisions of the order is not known.—EDITOR.

Menasha, Wis.—The Marathon Paper Mills Company, Menasha Products Division, manufacturer of waxed and other processed paper stocks, will begin superstructure soon for new addition, for expansion in machine department. General erection contract has been awarded to the Edward H. Meyer Construction Company, 74 Main street, Oshkosh, Wis. Oscar Bohmke is company engineer in charge of construction.

Lincoln, N. J.—The Celotex Corporation, 919 North Michigan avenue, Chicago, Ill., manufacturer of insulating board, wall board, etc., has arranged for lease of part of former mill of Royal Manufacturing Company, Lincoln, near Rahway, manufacturers of textile waste products. Acquired building will be used by company for storage, distribution and allied service, replacing its former plant of this kind at Port Newark, Newark, N. J., which was taken over recently by the Government. Lincoln property will be occupied at once and will be operated in conjunction with branch mill on Middlesex avenue, Metuchen, N. J.

Salmon Falls, N. H.—The American Core-Twine Company, manufacturer of paper fabrics, paper cords, cellophane twines, etc., formerly operating a mill on Fulda street, Roxbury, Boston, Mass., has transferred production to a plant at Salmon Falls, where additional facilities will be provided for increased output. Manufacture will be concentrated at new location in the future. Company also has established executive offices at Portsmouth, N. H.

Bogalusa, La.—The Gaylord Container Corporation, Pulp and Paper Division, 111 North Fourth street, St. Louis, Mo., manufacturer of kraft and other paper stocks, corrugating papers, etc., is completing an expansion and improvement program at mill at Bogalusa, in progress for a number of months past, and will have all additional facilities for increased capacity available at early date. As previously noted in these columns, work consists of a number of new mill units, with installation of additional equipment in pulp and paper-making departments. Extensions have been made in power plant at mill, with equipment for considerable increased capacity.

Atlanta, Ga.—The Fulton Bag and Cotton Mills, 170 Boulevard, S.E., are now operating a paper-converting department for the production of a special paper wrapping for cotton goods and other textile products, to replace burlap, as previously used and now no longer available through Government regulations. The new paper stock is of waterproof character, developed by laminating two sheets of kraft paper of desired thickness with a waterproofed asphalt adhesive. Flat paper of this kind is being produced for wrapping rolls of cloth, and a crinkled paper stock, of flexible character, for bales of textile goods. While initially developed for company service, the facilities of the paper-converting department have been expanded to make the stocks available to other textile mills.

Milwaukee, Wis.—The Milwaukee Lace Paper Company, 1306 East Meinecke avenue, manufacturer of lace papers and other special stocks, has work under way on small addition to plant, including remodeling of a present building. General contract recently was let to Claude J. Debbink, 2934 North Maryland avenue, Milwaukee. No estimate of cost announced. Hugo Logemann, 2462 North Lake drive, Milwaukee, is architect.

International Falls, Minn.—The Minnesota and Ontario Paper Company, Builders' Exchange Building, Minneapolis, Minn., manufacturer of newsprint, kraft and other paper stocks, will defer the completion of equipment installation in new addition to steam power plant at mill at International Falls until after the war. Plant expansion of several months ago provided for the installation of a new turbine-generator unit and accessories; while this machine was available a few weeks ago, it has been diverted by the Government for more essential war work. Present power station facilities, however, are stated to be sufficient for current requirements.

Minneapolis, Minn.—The Pioneer Paper Stock Company, 620 Oak Lake avenue North, commercial paper products, has work nearing completion on new addition, previously referred to in these columns, and will occupy the structure for storage and distribution service at early date. No estimate of cost has been announced. D. J. Kranz, 2900 Thomas avenue North, has the erection contract.

New Companies

Birmingham, Mich.—Fibre Products, Inc., has been chartered with capital of 25,000 shares of stock, no par value, to manufacture and deal in fiber and paper products. Glenn C. Waggoner, 539 Renley drive, Birmingham, is principal incorporator and representative.

Wilmington, Del.—The General Container Corporation recently has been incorporated under State laws, to manufacture and deal in paper boxes and other containers. New company is represented by the Corporation Trust Company, Industrial Trust Building, Wilmington.

Chicago, Ill.—The Dorsey Label Corporation, 412 South Market street, has been chartered to manufacture and deal in paper labels, tags and kindred paper goods. The incorporators include A. E. Dorsey and S. F. Block.

To Represent Mendenhall Co.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 27, 1942—The Smith & Lane Company have become the New England sales representatives for A. W. Mendenhall Company, Chicago, Ill., manufacturers of tissue napkins and tissue handkerchiefs.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending August 1, 1942

STOCKS

	High	Low	Last
A. P. W.	1⅞	1¾	1⅞
Armstrong Cork Co.	27	26¾	26¾
Celotex Corp.	6¾	6½	6½
Celotex Corp., pf.	70½	70¼	70½
Certain-Teed Products Corp.	1⅞	1¾	1¾
Certain-Teed Products Corp., pf.	27¼	25½	25⅞
Champion Paper & Fibre Co.	....	....	....
Champion Paper & Fibre Co., pf.	99	96	96
Congoleum Nairn Co.	15¾	15⅛	15½
Container Corp. of America	12⅜	12	12⅛
Continental-Diamond Fibre Co.	....	....	....
Crown-Zellerbach Co.	11	10⅝	10¾
Crown-Zellerbach Co., pf.	82	80	81
Dixie-Vortex Co.	8¾	8¼	8¾
Dixie-Vortex Co.—A.	....	....	....
Flintkote Co.	11⅜	10½	10½
Robert Gair	1⅝	1½	1½
Robert Gair, pf.	9½	9½	9½
International Paper Co.	9⅞	9	9⅜
International Paper Co., pf.	49¼	48⅛	48⅛
Johns-Manville Corp.	57⅜	56¾	57
Johns-Manville Corp., pf.	....	....	....
Kimberly Clark Corp.	25¾	25⅛	25¾
MacAndrews & Forbes	17	17	17
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	27	26¾	26¾
Mead Corp.	6¾	6⅜	6¾
Mead Corp., pf.	68	68	68
Paraffine Companies, Inc.	28¾	28¼	28¼
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	9⅛	9	9
Rayonier, Inc., pf.	24½	24½	24½
Ruberoid Co.	18¼	17⅜	17½
Scott Paper Co.	32⅞	32⅜	32½
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	21¾	21¾	21¾
Union Bag & Paper Corp.	8⅜	8¼	8⅜
United Paperboard Co.	3¼	3⅛	3¼
U. S. Gypsum Co.	53¼	51⅞	53
U. S. Gypsum Co., pf.	169	169	169
West Virginia Pulp & Paper Co.	13⅜	13⅛	13⅜

BONDS

Abitibi Pulp & Paper Co. 5s '53	69½	69½	69½
Celotex Corp. 4½s '47	98¾	98½	98¾
Certain-Teed Products Corp. 5½s '48	91	89¾	90¼
Champion Paper & Fibre Co. 4¾s '50	....	....	....
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	105	104¾	105
International Paper Co. 5s '47	103⅞	103⅞	103⅞
Mead Corp. 4½s '55	....	....	....
West Virginia Pulp & Paper Co. 3s '54	104⅞	104⅞	104⅞

New York Curb Exchange

High, Low and Last for Week Ending August 1, 1942

STOCKS

	High	Low	Last
American Box Board Co.	....	....	....
Brown Co., pf.	....	....	....
Great Northern Paper Co.	28	28	28
Hummel-Ross Fibre Corp.	2⅞	2⅞	2⅞
National Container Corp.	8	8	8
St. Regis Paper Co.	1¼	1¼	1¼
St. Regis Paper Co., pf.	113½	112½	112½
Taggart Corp.	....	....	....

BONDS

American Writing Paper Co. 6s '61	....	....	....

Lake Sulphite Accounts Approved

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 3, 1942—Upon the application of the Royal Trust Company, Hon. F. H. Barlow, master of the supreme court of Ontario, recently passed the accounts of G. S. Currie, receiver and liquidator of the Lake Sulphite Pulp Company, and made an order for a distribution to secured and preferred creditors and to unsecured creditors. J. L. Stewart represented Mr. Currie.

The secured creditors, under the order, will receive a pro rata share of $475,000 debenture stock of Brompton Pulp and Paper Company, Ltd., the purchaser of Lake Sulphite Comany's assets, and the unsecured creditors will get a proportionate share of $50,000 cash.

Gaylord Bonds Issue Sold

Sale of a $6,000,000 3½% debenture bond issue of the Gaylord Container Corporation to the Equitable Life Assurance Society of the United States has been announced by Lehman Brothers, who acted as agents for the corporation in arranging the financing.

The corporation is completing an $8,000,000 expansion program undertaken the past two years. Proceeds from the sale of the debentures were applied to the payment of $5,000,000 of bank debt and the balance added to the company's working capital. The corporaton is one of the country's leading manufacturers of a diversified line of paper products.

Kimberly-Clark Nets 69 Cents

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 27, 1942—Net profit of Kimberly-Clark Corporation, Neenah, Wis., for the quarter ending June 30, 1942 was $334,912.84, according to a report issued by the company last week. This is equal to 69 cents per share on 488,173 shares of common stock outstanding, and compares with a profit of $1.33 per share for the corresponding period of 1941. Net earnings of the first quarter of 1942 were $406,052.46, or 83 cents per share.

For the 12 months ended June 30, 1942, the net profit was $2,005,447.32, or $4.11 per share, as compared with $3.25 for the year ending June 30, 1941.

Container Corp. Profits Off

The Container Corporation of America reports for the June quarter, a consolidated net profit after $1,426,068 provision for Federal income and excess profits taxes of $356,517, equal to 46 cents each on 781,253 shares, compared with $548,646, or 70 cents a share, in preceding quarter, and revised net profit of $488,847, or 62 cents a share, in June quarter of 1941, when Federal income and excess profits totaled $681,449. Six months: Net profit after $3,620,652 provision for taxes, $905,163, or $1.16 a share, compared with revised net of $857,212, or $1.09 a share, after provision of $1,504,033 for taxes in 1941 period.

So. Advance Bag Profits Up

The Southern Advance Bag and Paper Company for the six months to June 30, reports a net income of $373,665, equal to $1.68 each on 166,650 shares of common stock after allowing for preferred dividend requirements, compared with $251,656, or 95 cents a common share, last year. June quarter: Net income, $170,658, or 74 cents a common share, against $86,087, or 24 cents a share a common, in second quarter of 1941.

M. & O. Earns $724,074

The Minnesota and Ontario Paper Company reports a consolidated net income for the six months ended June 30, of $724,074. R. H. M. Robinson, president, reported that the turbo generator for the steam plant addition at International Falls authorized

in March, 1941, was completed and tested at the manufacturer's plant in June, but was then diverted by government orders to more essential war work, and the ultimate installation must in all probability be deferred for the duration.

The power situation is presently satisfactory.

Puget Sound Earns $1.24

The Puget Sound Pulp and Timber Company for the six months to June, reports an indicated net profit of $437,532, after tentative provision of $1,201,152 for Federal income and excess profits taxes. Profit is equal after preferred dividend requirements, to $1.24 each on 326,917 shares of common stock. It compares with revised net profit after $947,552 provision for taxes, of $498,208, or $1.42 a common share.

Oxford Earnings Decline

The Oxford Paper Company for the six months to June 30, reports a net profit of $368,391, equal after preference dividend requirements, to 30 shares, against $474,922, or 57 cents a common share, last year. June quarter: Net profit, $145,470, or 5 cents a common share, against $222,920, or 25 cents a share, in preceding quarter and $262,821, or 35 cents a share on common, in June quarter of 1941.

Hoskins Nets 40 Cents

The Hoskins Manufacturing Company for the six months to June 30, reports a net income, after $110,875 Federal income tax and $291,090 excess profits tax of $191,379, equal to 40 cents each on 480,000 shares, compared with $330,625, or 69 cents a share, last year, after deducting $177,560 for Federal income tax and $90,580 for excess profits tax.

National Gypsum Earns 11 Cents

The National Gypsum Company and subsidiaries, for the three months ended June 30, 1942, reports a net income of $227,691 after taxes and charges, equal after preferred dividends to 11 cents a share on 1,321,458 common shares; preceding period $173,362 and 8 cents a share; a year ago $423,792 and 26 cents a share.

Tomahawk Nets $269,518

The Tomahawk Kraft Paper Company for the year to May 31, reports a net income of $269,518, against $269,929 net income for year to May 31, 1941; net sales, $2,925,489, against $2,289,935.

S. D. Warren Nets $2.76

The S. D. Warren Company for the six months to June 30, reports a net income of $279,702, equal to $2.76 each on 101,387 shares, against $248,220, or $2.45 a share, last year; net sales, $6,822,059, against $6,452,010.

Keyes Fibre Profits Rise

The Keyes Fibre Company for the six months to June 30, reports a net income of $167,022, against $143,750 net income last year; net sales, $1,844,760, against $1,432,839.

Brown Co. to Pay Accrued Interest

Making the first payment of accrued interest on its general mortgage 5 per cent cumulative bonds, series A, more than nine months before the standby payment date, the Brown Company will mail on August 20 checks for interest for the period from December 1, 1939 to June 1, 1940 it was announced Monday by H. P. Carruth, vice-president.

Although the standby provisions permit no interest payment on general mortgage bonds before June 1, 1943, the board of directors voted to request the Reconstruction Finance Corporation to waive these provisions because the bondholders had received no interest on their old bonds during the period in which the company was going through reorganization proceedings.

Mr. Carruth pointed out that some of the old securities have not yet been exchanged under the plan of reorganization and that holders of old bonds who do not become registered owners of the new bonds before August 20 will receive this interest payment only upon making the exchange.

To Send Newsprint Thru Cape Vincent

[FROM OUR REGULAR CORRESPONDENT]

CAPE VINCENT, N. Y., August 1, 1942—Announcement is made here that thousands of tons of Canadian newsprint may be sent through the local port from the St. Lawrence River because of the submarine menace to shipping. Representative of several Canadian paper mills have already inspected facilities here. Ordinarily, the terminal here handles pulp wood but only a small amount of tonnage is now being transported by water because of the pressing need of space for war materials. Groundwood is being brought up the St. Lawrence from Quebec and unloaded at Clayton from where it is taken by rail to the Scott Paper Mills at Chester, Pa. The port terminal at Clayton is experiencing good condition with about 25 stevedores being employed. The first cargo of wood pulp from Canada was received there early in May.

Changes Name to Lobdell Co.

The Lobdell Car Wheel Company has amended its name to Lobdell Company. The Lobdell Company, established in 1836, manufactures Lobdell roll grinding machines, Nazel electro pneumatic forging hammers and Dill travelling head slotters. It specializes in Chilled iron rolls for the paper industry.

There is no change in the ownership or management of the company. The deletion of the words "Car Wheel" from the name is made to obviate confusion since the nature of the business has changed with the acquisition of the Nazel Engineering and Machine Works line of forging hammers and slotting machines.

Donald Richardson Enters Army

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 3, 1942—Donald Richardson, salesman, is celebrating his 20th anniversary with Storrs & Bement Company by being commissioned as Second Lieutenant in the U. S. Army. He appeared today for active duty.

W. J. Pilz Heads Everett Paper Co.

EVERETT, Wash., August 1, 1942—Almost 40 years to the day when he went to work for the big firm at Lowell, W. J. Pilz today was elected president and general manager of the Everett Pulp and Paper Company. Mr. Pilz recalled his start with the company in the capacity of office boy as he announced the election of officers occasioned by the death of A. H. B. Jordan, who was president and treasurer.

Anson B. Moody is vice president and assistant general manager and G. A. Blomberg is secretary and assistant treasurer. The trustees are Mr. Pilz, Mr. Moody, Mrs. Ada Pilz, Mrs. Ellen Moody, Mrs. Lillian Meadowcroft, J. A. Coleman and W. M. Jenkins, president of the Everett Trust & Savings Bank which is executor of the Jordan estate.

There will be no change in the policies of the paper mill from those under which it has successfully been operated during the past 50 years, Mr. Pilz said.

The new vice president, Mr. Moody, has been with the company since 1927. Mr. Blomberg, who continues also as office manager, has been connected with the firm since December, 1917. Mr. Pilz recalled that it was in August, 1902, when he first entered the company

How to Conserve Rubber Products

KALAMAZOO, Mich., July 31, 1942—The Rubber Products Conservation program given by the Goodyear Tire and Rubber Company, and sponsored by the Michigan Division of the American Pulp and Paper Mill Superintendents Association, was held at the Community House, Parchment, Thursday evening, July 30. Inclement weather undoubtedly held the attendance to rather small proportions but those present were given much valuable information on methods to be used to conserve all rubber products used in the industry.

W. D. Bradshaw, in charge of Industrial Rubber Conservation, and P. B. Eckels, Michigan representative of the Goodyear company, had charge of the program which consisted of two films showing the results of carelessness in the use of rubber equipment and suggested methods to correct them and the manufacturing processes of both raw and synthetic rubber. An interesting forum conducted by Mr. Eckels brought out much information on the subject and proved instructive to members present. Paper mill superintendents and all other employees of the production departments in the industry should see and hear this program.

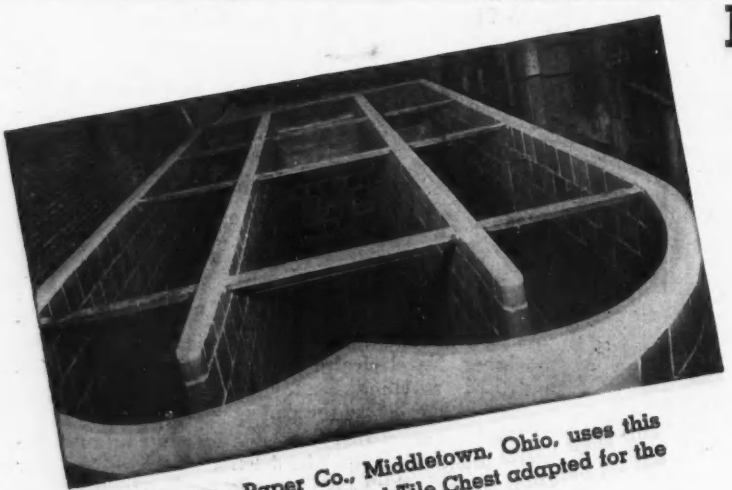
Brightness Ceilings Removed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1942—Restrictions on the "brightness ceilings" of 100% rag content paper were removed today by Amendment No. 2 to General Limitation Order L-11, which is designed to conserve chlorine.

Previously, the "brightness ceiling" of 100% rag content grade paper under the chlorine conservation order had been fixed at 82%.

After investigation, WPB's Pulp and Paper Branch found that very slight quantities of chlorine are required for processing 100% rag papers. Reducing the brightness of these papers, it was determined, contributes nothing to the conservation of chlorine.



The Sorg Paper Co., Middletown, Ohio, uses this 37-foot Kalamazoo Glazed Tile Chest adapted for the Shartle Bros. "Agi-Flow."

★

KALAMAZOO TILE CHESTS

Low storage cost, smooth walls inside and out for quick cleaning, and carefully designed adaptation to pump delivery and agitation for stock storage and bleaching — those are the advantages that make Kalamazoo Glazed Tile Chests a good business investment.

Any Kalamazoo Chest can be built to your individual requirements, and delivered promptly. Send for complete information.

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KALAMAZOO TANK & SILO CO.

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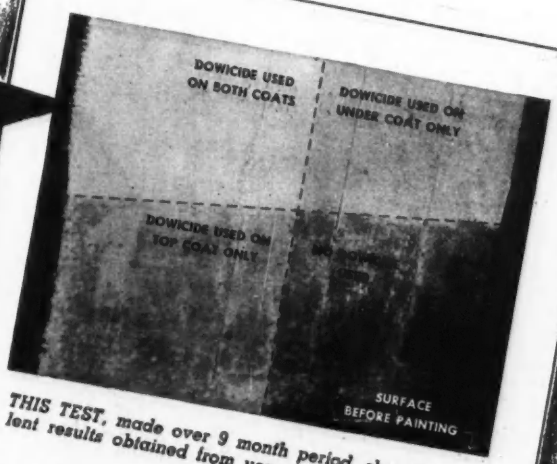

THIS TEST, made over 9 month period, shows excellent results obtained from use of DOWICIDE *in paints.*

Making Paint Jobs Mold-Resistant

Mold-resistant paints mean longer life for the paint job—an important factor in lowering maintenance costs. Paint containing small percentages of DOWICIDE* offers protection against the mold spores which collect on walls and germinate wherever high relative humidities exist. Both priming and surface coats of DOWICIDE protected paint are recommended.

The Preservation of Structural Timbers

Structural timbers unprotected from rain or in locations subjected to high relative humidity can be protected against decay and termite attack with DOWICIDE. After timbers impregnated by standard methods with solutions of DOWICIDE have dried, they are left odorless, colorless, paintable and efficiently protected.

Other Uses for Dowicide

(1) Controls slime conditions.
(2) Prevents stain and decay on pulp logs.
(3) Preserves lap and pulp stock.
(4) Prolongs felt life.
(5) Makes paper products mold-resistant.
(6) Preserves proteins, starches, and other sizing materials.

DOWICIDE Technical Bulletin No. 49 on "The Use of DOWICIDE for the Reduction of Maintenance Costs" is now available. Write to the DOWICIDE Division for your free copy.

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 115 August 6, 1942 No. 6

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Technical Association of the Pulp and Paper Industry, Fall Meeting, Statler Hotel, Boston, Mass., September 29-October 1.

MANAGEMENT AND LABOR

Management and labor as representative of two vital economic forces, have seldom united for a common purpose. Presumably, this has been so because to fight or oppose any principle or action not deemed of immediate value to the individual, still contributes a very strong influence in industry and trade, and provides much of the incentive of all progress. Now, "For the first time in our country's history," states the July 27 issue of the *Washington Review*, published by the Chamber of Commerce of the United States, "representatives of labor and management have come together voluntarily to consider common aims. They addressed their efforts to winning the war. That action may mark an epoch in American industrial relations, if, as is hoped, it establishes a precedent in future management labor cooperation."

In commenting further on this notable meeting, the *Review* says: "At a meeting during the week, initiated by Eric A. Johnston, president of the National Chamber, representatives of the country's four leading business and labor organizations agreed as a first move, to work jointly in every possible way to assure uninterrupted war production. An agreement, in the form of a joint statement, was presented to the President of the United States at a White House conference on July 23. The President indicated he would be glad to have any suggestions from the group from time to time. In the past, management and labor spokesmen have met to fight out their differences. Now, they have come together on their own initiative to think out their problems. It was clearly established at the initial meeting that areas of agreement are much broader than the areas of disagreement. No rigid program is contemplated, but it is planned to hold future informal meetings. Management and labor have moved in the democratic way. This momentous step will be hailed as a statesmanlike move to establish more amicable relations between the two to insure the winning of the war and winning of the peace as well."

Referring to the statement presented to President Roosevelt, the *Review* continues: "We have come here this morning to express to you our joint desire to cooperate in every possible way to win this war. We realize that in this critical hour, the future of our American system, comprising free management and free labor, is at stake. We must win the war to preserve that system for the future. Having demonstrated devotion to the Nation's war effort in an astounding war production record, we now wish to assure you that for the hard pull to victory ahead, the representatives of the four great employee-employer organizations for the first time in history have sat down together voluntarily to canvass what more we can do to win the war. At our initial meeting, it was agreed to call upon you, Mr. President, to reaffirm jointly our whole-hearted cooperation for uninterrupted war production, and to give a demonstration to our own country and to the whole world, of the unity of purpose and action of American management and labor. That is the sole reason we are here. "Representatives from the Chamber of Commerce of the United States, the National Association of Manufacturers, the American Federation of Labor, and the Congress of Industrial Organizations, attended the meeting at the White House.

In relation to the labor supply situation, the *Review* points out that, "Regional agreements between management, labor, and government agencies to prevent industries from snatching each other's labor is the plan of the War Manpower Commission. If labor and management in war industrial areas do not work out some method of putting available workers in critical jobs and keeping them put, the Commission threatens to ask for legislation to establish labor priorities. . . . Progress in expediting war production training by joint effort of business men and educators is reported from 128 communities in 37 states. A summary of what has been accomplished is put out by the Conference Committee of the American Association of School Administrators and the Education Committee of the National Chamber, in the second issue of "Wartime Job Training" copies of which are available, without charge, from the Educational Committee of the Chamber of Commerce of the United States, Washington, D. C.

In reference to man power the *Review* states in part: "The anomaly of unemployment, still found in many localities today at a time when there is a general labor shortage, particularly in war industries, arrests attention. New York City, for example, complains that unemployment is increasing. Cities in

other parts of the country, some even heavily loaded with war orders, make similar reports. One city in the Middlewest, with 90% of its plants already said to be engaged in war production, calls the Chamber's attention to a troublesome unemployment situation. Localized unemployment can be traced, for one thing, to the fact that even some war industries are having a hard time getting materials. Again, workers making civilian goods, now being curtailed or discontinued, have not as yet found their way into war plants."

To Give Patriotic Certificate

Bruce Rogers, America's most distinguished typographical designer, is adding his bit to encourage the graphic arts to active support of the volunteer war advertising campaign which was launched in June by the New York and Pennsylvania Company, New York. It is now announced by the company that a Certificate of Patriotic Service, specially designed by Mr. Rogers, will be awarded to every printer and lithographer submitting six or more pieces as entries in the Nypen Patriotic Slogan Contest and to each advertiser or buyer of printing who has cooperated in the campaign by permitting patriotic slogans and messages to be reproduced on his printed matter. These award certificates will be in addition to the major prizes, totaling $1,000 in war bonds, which have already been announced by the company.

Distribution is also announced by the Nypen Contest Committee of the first of a series of press sheets of approved patriotic slogans and messages appropriate for reproduction on all types of printed matter. Ten different slogans and symbols are presented, each designed to advertise and promote some patriotic cause such as the war bond drive, the Red Cross, the U.S.O., Navy Relief, army recruiting and so forth. Arrangements have been made to supply electrotypes of these slogans at cost. Copies of the press sheet may be obtained from the Nypen Contest Committee, 225 Varick street, New York City.

Textbook Sales Keep Up

Interest in the textbooks upon the Manufacture of Pulp and Paper is keeping up well in wartime, according to the report of the publishers. During the first half of 1942 sales came to 511 volumes, bringing the grand total to 35,459 since the publication of Volume I in February, 1921. The detailed figures supplied by the McGraw-Hill Book Company are as follows:

	1st 6 Mos. 1942	Total to date
Vol. I	36	5,004
Vol. II	46	4,203
Vol. III	169	10,702
Vol. IV	133	8,337
Vol. V	127	7,213
Total	511	35,459

The Joint Textbook Committee of the North American Paper Industry which sponsors these textbooks has been functioning for twenty-four years. The royalties from sales accrue to the committee and the funds thus derived are devoted to the necessary time-to-time revisions of the texts and the promotion of education in the industry. It is a record of which the original contributors to the undertaking—nearly 300 firms and individuals—may well be proud.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1942		Corresponding Weeks—1941	
June 20	85.9	June 21	99.9
June 27	84.9	June 28	101.5
July 4 ..(Holiday Week)	71.4	July 5	72.8
July 11	67.2	July 12	95.2
July 18	81.7	July 19	100.7
July 25 ....(Preliminary)	*80.2*	July 26	101.9

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1941	85.6	89.7	92.2	96.0	98.7	99.3	94.2
1942	104.5	103.9	102.9	100.3	95.4	*87.2*	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1941	101.0	99.7	105.2	106.2	100.4	97.4
1942	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941	1942
Year to Date..	68.2	77.7	87.9	67.6	78.6	85.9	93.4	*95.9*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	97.4	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	*72*	..	..	..	..	..	..	..

Week ending June 20, 1942—69
Week ending June 27, 1942—72
Week ending July 4, 1942—59
Week ending July 11, 1942—52
Week ending July 18, 1942—71
Week ending July 25, 1942—*74*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

British Columbia Makes New Records

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., July 27, 1942—British Columbia's Pulp and Paper Industry established new records in volume and value of production last year, according to the official figures issued by the Provincial Government. With nearly all pulp and newsprint mills operating at capacity, output was maintained at a high level throughout the year. Total value of production was up about 21 per cent, amounting to $27,723,000, compared with $22,971,000 in 1940 and the ten-year average of $1,692,000.

Pulp and paper were worth almost half as much as the province's lumber production.

A total of 275,788 tons of newsprint and 75,453 tons of other papers were produced during the year 1941, compared with 262,144 tons and 66,428 tons respectively in the previous year.

In addition to 322,034 tons of pulp manufactured into paper in British Columbia during the year 172,811 tons were shipped out of the province in that period.

Logs were exported last year to the value of $4,212,000, another all-time record figure. In 1940 the total value of exported logs was $2,684,000. The ten-year average was $2,912,000.

Although the official records do not specify the production of individual mills, Powell River Company and Pacific Mills continued as the newsprint producers, with both these plants and the two mills of B. C. Pulp and Paper Company, the plants of Westminster Paper Company, Sorg Pulp Company and Sidney Roofing Company contributing to the pulp total.

Current problems facing the industry include shortage of raw materials and experienced labor. There is a good market for all that can be produced.

TROUBLE-FREE SPECIALTIES FOR IMPROVED SCUFF RESISTANCES OF PAPERS AND PAPER BOARDS

Principles Involved in Securing Scuff Resistance . . . Prevention of the disturbance of the surface fibers of paper and paper boards by abrasion, beyond the part played by the natural bond between the fibers themselves, is now accomplished by a treatment that does two things:

1. It binds the surface fibers still more tightly.
2. It lubricates the surface, thereby reducing friction generated by the paper product when rubbed against other objects.

These two principles are complementary and much more effective when used together than when either is applied alone.

Raw Materials Involved . . . For the ordinary job where cost is a prime factor, lubrication is provided by petroleum wax in emulsified form. Starch is the most widely used adhesive. The wax plasticizes the starch to some extent and it definitely reduces the tendency of paper to adhere to the calender rolls when starch is being applied at that point. Yet, not all situations call for the same treatment even when the same products are being manufactured. Sometimes better results are obtained by the addition of other raw materials, such as natural or synthetic resins. Careful preparation of the adhesive and fine and uniform dispersion of the lubricant, as well as temperature conditions at va points, play important parts in ing maximum results with mini quantities of raw materials.

A properly designed scuff res treatment should have the follo characteristics:

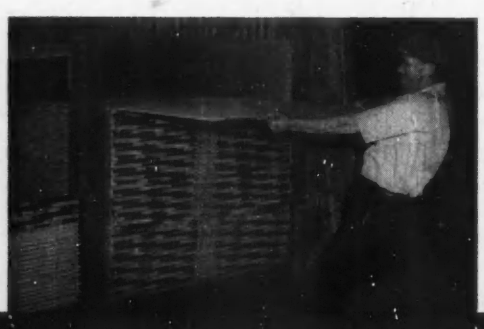
1. It should penetrate the she ficiently but not excessivel
2. It should not cause manuf ing difficulties due to sli paper.
3. It should impart scuff resis that will not decline on st of paper.
4. It should produce highest sc sistance at lowest cost.

Choosing the proper raw materia the correct operating conditions for consideration of many facto which technical and practical e ence are of great value.

Importance of Scuff Resistance i ferent Grades of Paper . . . Most a tion has been given to container b for shipping cases in connection scuff resistance, yet many other of paper products must underg peated handling and are improv chemical treatment to increase bility. Other grades that come i category are bond, cover, env hanging, map and tag papers and ing box, insulating and wall boa

Cyanamid men have had broa perience along this line and hav veloped products especially fo purpose. They will be glad to d your problems with you and a you both as to materials and proce

Scuff resistance is an important factor in making box boards stand up under rigorous handling in storage and transit.



Structural and insulation boards are given scuff resistant qualities to withstand damage in storage and handling.

"Dry-Rub" Tests at Cyanamid's laboratory sho scuff resistances.

In addition to many new specialties for the paper field, Cyanamid supplies:
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CORN STARCH • TAPIOCA FLOUR
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DEFOAMERS
AEROSOL* WETTING AGENTS and
OTHER PAPER CHEMICALS

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Bleaching Gumwood Sulphate Pulp*

By John D. Rue[1] and S. C. Nagel[2]

Abstract

A bleaching study was made of an easy-bleaching gumwood sulphate pulp which had been prepared on a semicommercial scale.

Shades up to about 65 brightness were attained using a single-stage hypochlorite procedure without serious loss in strength.

Shades up to 80 brightness were attained using two-stage chlorination hypochlorite procedures also without serious loss in strength. The introduction of a hot caustic-extraction stage between the other two stages resulted in a slight increase in the brightness of the bleached pulp with no effect on the strength. "All-acid" chlorination and "chlorination with alkaline oxidation phase" can be used interchangeably without affecting chemical or pulp economy or strength properities.

Shades up to 85 brightness were attained by adding a second hypochlorite stage to either the two or the three stage procedure having "chlorination with alkaline oxidation phase."

The effect of degree of chlorination on the relation of chlorine consumed to brightness was determined for both types of two stage chlorine hypochlorite procedure.

The purpose of the investigation reported in this paper was to make some contribution to our rather limited knowledge of the bleaching characteristics of gumwood sulphate pulp. Special attention has been devoted to the relative value of the various procedures now available and of combinations of those procedures in bleaching to different degrees of brightness. It is realized that such information is essential to those who are concerned with the installation of facilities for bleaching gum pulp, or with the most effective adaptation of pine sulphate bleacheries to that purpose.

Gumwood, of which there are several varieties, is rapidly taking a position of increasing importance as a pulpwood in the sulphate pulp industry of the southeastern states. Other broadleaf species of the region also are finding use in the same industry.

The broadleaf species, sometimes referred to as hardwoods to distinguish them from the pines and other conifers, are more abundant and less in demand in the south than are the pines. Their use in pulp and paper is, therefore, of importance to the forest economy as well as to the economy of pulp manufacture.

The gumwoods, like many of the hardwoods, pulp readily by the sulphate process and yield pulps which bleach more easily than do pine sulphate pulps. Fiber length of gum pulps is greater than that of most other hardwood pulps, although considerably less than that of the pine sulphates. The hardwood pulps and especially the gum pulps, can contribute to the strength of the paper of which they form a part although their chief value lies in their ability to close the sheet, and thus to insure good formation and good printing surface.

Procedures and Combinations of Them

The procedures studied in this investigation have been selected from those found in commercial use. They are described by the authors in their report entitled "Procedures and Brightness Grades in Bleaching Sulphate Pulps."[3] The number of procedures used in combination for the bright shades need not be as great for gum as for pine.

The following procedures and combinations of them were studied:

Single Stage Procedures	
"B"	Single-stage hypochlorite bleach.
"C_a"	Chlorination. This may be designated "all-acid" for the reason that the chlorinated pulp is washed without previous neutralization.
"C"	Chlorination in which relatively large proportions of chlorine are used and in which, after a short reaction at a pH or about 2 or less, the pH is quickly shifted to at least 8. The oxidation under alkaline conditions then continues for an hour or more. This may be designated "chlorination with alkaline oxidation phase."
"N"	"Hot caustic extraction."
Two Stage Procedures	
"C_aB"	"All-acid" chlorination followed by a hypochlorite bleach.
"CB"	"Chlorination with alkaline oxidation phase" followed by a hypochlorite bleach.
Three Stage Procedures	
"C_aNB"	Same as "C_aB" except that a hot caustic extraction is inserted between the other two stages.
"CNB"	Same as "CB" except that a hot caustic extraction is inserted between the other two stages.
"CBB"	Same as "CB" except that the hypochlorite bleach is conducted in two consecutive stages instead of in only one stage.
Four Stage Procedure	
"CNBB"	Same as "CNB" except that the hypochlorite bleach is conducted in two consecutive stages instead of in only one stage.

In all combinations each stage is concluded with a thorough washing of the pulp.

The symbols indicated above will be helpful as a means of simplifying the discussion.

The pulp used in the investigation was a 100% gum sulphate pulp specially cooked on a semicommercial scale for bleaching.

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* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 16-19, 1942.

[1] Member TAPPI, in charge of Sales Service, Hooker Electrochemical Company, Niagara Falls, N. Y.

[2] In Charge Pulp Laboratory, Hooker Electrochemical Company, Niagara Falls, N. Y.

[3] Presented at the TAPPI 1942 Annual Meeting.

The bleaching data for all procedures are shown in Tables II and III. Strength data are shown graphically in Figs. 3, 6, 8, 9, and 10.

Single-Stage Bleaching Procedures

The relation of brightness developed by means of a single-stage hypochlorite bleach to available chlorine added is shown in Fig. 1[3], Curve 1.

The proportion of chlorine required for any brightness is much less for gum than for any of the typical pine sulphates shown in the same figure.

A similar range of brightness can be obtained in a single stage by using the "chlorination with alkaline oxidation phase" procedure ("C"). The relation of brightness developed by that procedure to available chlorine added is shown in Fig. 2, Curve *C C*. The single-stage hypochlorite is shown in same Fig. 2, Curve *B B*.

In Fig. 2 also is the similar curve for the "all-acid" chlorination ("C_a") single-stage reaction. That type

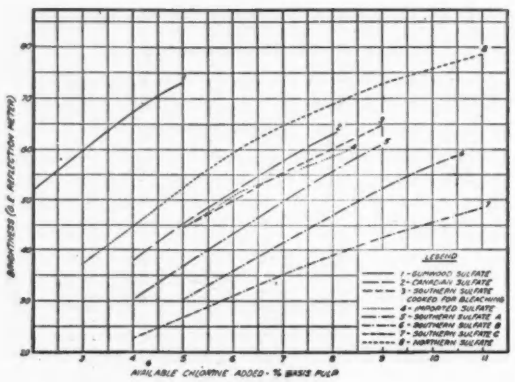

FIG. 1

Relation of Brightness to Available Chlorine Added in Single Stage Hypochlorite Bleaching of Several Sulphate Pulps

of procedure is not effective for the development of brightness but can be considered as an important purification reaction preliminary to subsequent bleaching procedures.

From the standpoint of economy of chlorine consumption, the hypochlorite reaction is the most de-

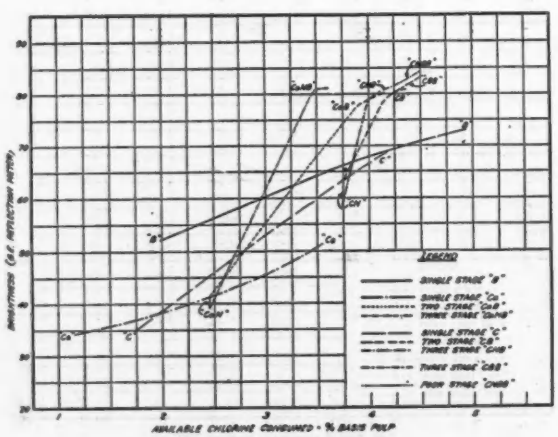

FIG. 2

Relation of Chlorine Consumed to Brightness Developed when Using Various Procedures

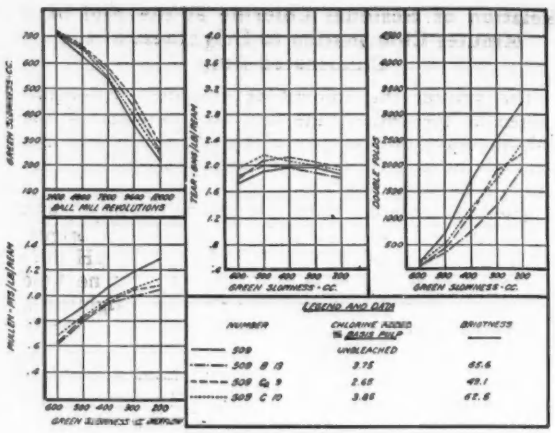

FIG. 3

Strength and Freeness of Pulps Bleached by Three Kinds of Single Stage Procedure

sirable of the three procedures for any brightness up to a little over 65. At a brightness around 65 the hypochlorite compared with the "chlorination with alkaline oxidation phase" procedure shows a slight advantage as regards chlorine economy (Fig. 2) and a disadvantage as regards strength of pulp (Fig. 3).

TABLE I.—RELATION OF CHLORINE RESIDUAL AT THE END OF 5 MINUTES TO BRIGHTNESS AT END OF THE CHLORINATION PROCEDURE

Number	Chlorine added basis pulp, %	Conditions at end of 5 min. Residual Cl_2 g.p.l.	pH	Minimum pH of supplementary reaction	Total period, min.	Total chlorine consumed basis pulp, %	Brightness G.E. reflection meter, points
"All-acid" Chlorination ("C_a")							
509 C_a5	1.20	0.01	2.3	2.3	5	1.15	34.3
C_a6	2.25	0.16	2.1	..	30	2.05	38.4
16	2.55	0.20	1.5	1.4	60	2.40	41.9
17	2.60	0.21	1.5	1.4	60	2.45	40.8
9	2.65	0.27	2.0	2.1	60	2.30	43.1
15	2.65	0.21	1.6	1.4	60	2.50	42.7
7	3.10	0.27	2.1	..	60	2.75	42.2
8	4.15	0.52	2.0	2.1	180	3.50	51.0
Chlorination with alkaline oxidation phase ("C")							
509 C 1	1.75	0.06	2.7	8.6	10	1.75	35.2
2	2.80	0.22	2.1	8.4	20	2.80	50.3
3	3.75	0.45	2.1	7.9	35	3.60	60.8
12	3.75	0.47	..	8.1	60	3.65	65.5
10	3.85	0.52	1.9	8.2	60	3.75	62.5
11	3.85	0.57	..	8.1	60	3.75	66.9
13	3.90	0.50	1.9	8.0	61	3.80	65.7
4	4.60	0.65	..	7.9	90	4.20	67.6

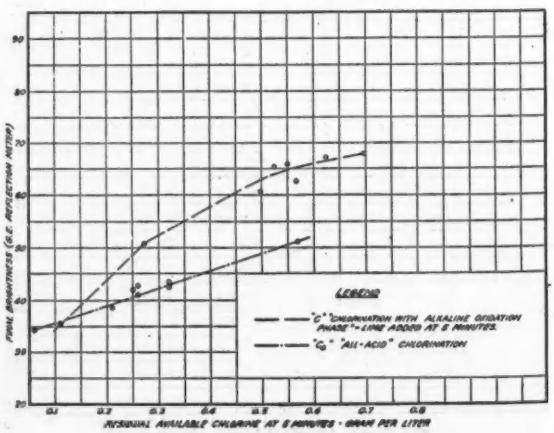

FIG. 4

Relation of Chlorine Residual at the End of Five Minutes to Brightness at the End of the Chlorination Procedure

Relation of Residual Chlorine at the End of 5 Minutes Chlorination to Brightness of the Chlorinated Pulp

The greater the amount of chlorine left unconsumed at the end of the first five minutes of the chlorination reaction period the brighter was the pulp at the end of the chlorination procedure (see Table I and Fig. 4).

When the chlorine, after the first five minutes, was allowed to react at a low pH (1.5 to 2.3) the brightening effect was relatively small. When the pH during the supplementary period was high (at no time during the period less than 7.9-8.6) the brightening was more pronounced.

The increase in brightness resulting from increases in residual chlorine was accompanied by an increase in the time required to consume the chlorine in the supplementary period. With the "all-acid" chlorination the rate of exhaustion of the residual chlorine was less than with the "chlorination with alkaline oxidation phase." A residual of 0.27 gram per liter chlorine in the "C_a" procedure was only 87-89% consumed in 60 minutes and a residual of 0.52 only 84% consumed in 3 hours. In the "C" procedure, however, a residual of 0.57 gram per liter was 96% consumed in 60 minutes and a residual of 0.65 was 91% consumed in 90 minutes.

The relationship has an important bearing on the

TABLE II.—BLEACHING DATA

CHLORINATION STAGE ("C" or "C_a")—Consistency 3%, temperature 25 deg. C. (± 2), lime (for "C" only) added at 5 minutes.
"HOT CAUSTIC EXTRACTION STAGE" ("N")—Consistency 5%, temperature 60 deg. C. (± 1), period of extraction 60 minutes.
HYPOCHLORITE STAGE ("B")—Consistency 5%, temperature 35 deg. C. (± 2), lime for pH control added part at start and part during bleaching.
Chlorine, lime and caustic reported as per cent basis pulp except as otherwise indicated.

		Chlorination stage ("C" or "C_a")							Hypochlorite stage ("B")					All stages			Brightness-G.E. reflection meter	
		Chlorine							Chlorine					Chlorine				
Number		Added, %	Consumed, %	Residual at 5 min., g.p.l.	$Ca(OH)_2$ added, g./g. Cl_2	pH at end	Reaction period, minutes	Caustic stage ("N") NaOH added, %	Added, %	Consumed, %	$Ca(OH)_2$ added, g./g. Cl_2	pH minimum	Bleaching period, minutes	Added, %	Consumed, %	$Ca(OH)_2$ added,** %	Original value, points	Drop after 14 days, points
509		Unbleached pulp															33.5	...
B	8	...	...	...	...	..	..	...	2.00	1.98	0.15	7.95	100	2.00	1.98	2.30	52.1	...
B	9	...	...	...	...	..	..	...	3.25	3.20	0.13	8.00	125	3.25	3.20	3.70	61.6	...
B	10	...	...	...	...	..	..	...	4.00	3.90	0.13	7.85	145	4.00	3.90	4.55	67.1	...
B	11	...	...	...	...	..	..	...	5.00	4.95	0.19	7.9	240	5.00	4.95	6.00	73.0	...
B	7	...	...	...	...	..	..	...	4.40	4.40	0.18	8.05	270	4.40	4.40	5.20	70.2	1.8‡
B	13	...	...	...	...	..	..	...	3.75	3.75	0.17	7.95	142	3.75	3.70	4.40	65.5	1.4
C_a	5	1.20	1.15	0.01	...	2.3	5	...	...	...	...	...	...	1.20	1.15	...	34.3	...
C_a	6	2.25	2.05	0.16	...	..	30	...	...	...	...	...	...	2.25	2.05	...	38.4	...
C_a	7	3.10	2.75	0.27	...	..	60	...	...	...	...	...	...	3.10	2.75	...	42.2	...
C_a	8	4.15	3.50	0.52	...	2.1	180	...	...	...	...	...	...	4.15	3.50	...	51.0	...
C_a	9	2.65	2.30	0.27	...	2.1	60	...	...	...	...	...	...	2.65	2.30	...	43.1	...
C_a	15	2.65	2.50	0.21	...	1.4	60	...	...	...	...	...	...	2.65	2.50	...	42.7	...
C_a	16	2.55	2.40	0.20	...	1.4	60	...	...	...	...	...	...	2.55	2.40	...	41.9	...
C_a	17	2.60	2.45	0.21	...	1.4	60	...	...	...	...	...	...	2.60	2.45	...	40.8	...
C_a	18	2.60	2.45	0.21	Blend of C_a 15, 16, 17 (Data are weighted averages)			...						2.60	2.45	...	41.8	...
C_aB	9	1.20	1.15	0.01	(Portion of C_a 5)			...	2.30	2.15	0.17	7.95	120	3.50	3.30	2.70	66.4	...
C_aB	13	1.20	1.15	0.01	(Portion of C_a 5)			...	3.80	3.50	0.17	7.95	240	5.00	4.65	4.50	73.4	...
C_aB	10	2.25	2.05	0.16	(Portion of C_a 6)			...	1.50	1.40	0.17	7.95	120	3.75	3.45	1.75	71.7	...
C_aB	14	2.25	2.05	0.16	(Portion of C_a 6)			...	2.00	1.70	0.21	7.95	240	4.25	3.75	2.45	77.2	...
C_aB	11	3.10	2.75	0.27	(Portion of C_a 7)			...	1.10	1.00	0.17	7.90	197	4.20	3.75	1.30	74.7	...
C_aB	15	3.10	2.75	0.27	(Portion of C_a 7)			...	1.60	1.30	0.17	7.95	240	4.70	4.05	1.90	80.0	...
C_aB	12	4.15	3.50	0.52	(Portion of C_a 8)			...	0.65	0.55	0.17	8.30	120	4.80	4.05	0.75	74.9	...
C_aB	16	4.15	3.50	0.52	(Portion of C_a 8)			...	0.90	0.70	0.21	8.00	240	5.05	4.20	1.10	79.8	...
C_aB	20	2.60	2.45	0.21	(Portion of C_a 18)			...	2.00	1.70	0.24	7.7	360	4.60	4.15	2.50	79.9	1.9
C_aB	21	2.60	2.45	0.21	(Portion of C_a 18)			...	1.50	1.45	0.29	7.65	360	4.10	3.90	1.95	77.7	1.7
C_aB	22	2.60	2.45	0.21	(Portion of C_a 18)			...	2.00	1.70	0.29	7.9	330	4.60	4.15	2.60	80.8	2.2
C_aN	2	2.60	2.45	0.21	(Portion of C_a 18)			2.00	...	...	...	...	...	2.60	2.45	...	38.6	...
C_aNB	4	(First 2 stages Portion of C_aN 2)					..	...	2.00	1.05	0.13	8.2	363	4.60	3.50	2.25	80.8	0.6
C_aNB	5	(First 2 stages Portion of C_aN 2)					..	...	1.50	1.00	0.13	8.2	369	4.10	3.45	1.70	79.3	1.1
C_aNB	6	(First 2 stages Portion of C_aN 2)					..	...	2.00	1.15	0.13	8.0	330	4.60	3.60	2.25	81.1	1.1
C	1	1.75	1.75	0.06	1.01	8.6	10	...	...	...	...	...	...	1.75	1.75	1.75	35.2	...
C	2	2.80	2.80	0.22	1.04	8.4	20	...	...	...	...	...	...	2.80	2.80	2.90	50.3	...
C	3	3.75	3.60	0.45	1.02	7.9	35	...	...	...	...	...	...	3.75	3.60	3.80	60.8	...
C	4	4.60	4.20	0.65	1.01	7.9	90	...	...	...	...	...	...	4.60	4.20	4.65	67.6	...
C	10	3.85	3.75	0.52	1.01	8.2	60	...	...	...	...	...	...	3.85	3.75	3.85	62.5	1.5
C	11	3.85	3.75	0.57	1.01	8.1	60	...	...	...	...	...	...	3.85	3.75	3.90	66.9	...
C	12	3.75	3.65	0.47	1.04	8.1	60	...	...	...	...	...	...	3.75	3.65	3.90	65.5	...
C	13	3.90	3.80	0.50	1.00	8.0	61	...	...	...	...	...	...	3.90	3.80	3.90	65.7	...
C	14	3.85	3.75	0.51	Blend of C 11, C 12, and C 13 (Data are weighted averages)			...						3.85	3.75	3.90	66.0	...
CB	1	1.75	1.75	0.06	(Portion of C 1)			...	3.25	2.95	0.17	7.95	240	5.00	4.70	5.60	73.8	...
CB	5	1.75	1.75	0.06	(Portion of C 1)			...	1.75	1.55	0.22	7.8	240	3.50	3.30	3.90	72.5	...
CB	2	2.80	2.80	0.22	(Portion of C 2)			...	2.15	0.95	0.17	8.4	240	4.95	3.75	5.45	77.1	...
CB	6	2.80	2.80	0.22	(Portion of C 2)			...	0.90	0.70	0.21	7.8	240	3.70	3.50	4.00	76.2	...
CB	3	3.75	3.60	0.45	(Portion of C 3)			...	1.25	0.65	0.17	8.2	240	5.00	4.25	5.30	78.3	...
CB	7	3.75	3.60	0.45	(Portion of C 3)			...	0.45	0.40	0.17	8.2	240	4.20	4.00	4.35	76.3	...
CB	4	4.60	4.20	0.65	(Portion of C 4)			...	0.35	0.25	0.17	8.10	240	4.95	4.45	5.40	78.2	...
CB	8	4.60	4.20	0.65	(Portion of C 4)			...	0.25	0.18	0.17	8.30	240	4.80	4.38	4.80	76.6	...
CB	17	3.85	3.75	0.51	(Portion of C 14)			...	0.75	0.50	0.20	7.75	360	4.60	4.25	4.80	81.1	2.2
CB	18	3.85	3.75	0.51	(Portion of C 14)			...	1.20	0.55	0.13	7.85	360	5.05	4.30	5.30	81.5	1.7
CB	19	3.85	3.75	0.51	(Portion of C 14)			...	0.75	0.55	0.21	7.90	330	4.60	4.30	4.85	79.8	1.2
CN	1	3.85	3.75	0.51	(Portion of C 14)			2.00	...	...	...	...	...	3.35	3.75	3.90	58.6	...
CNB	1	(First 2 stages Portion of CN 1)					..	...	0.25	0.20	0.13	8.00	240	4.10	3.95	4.20	79.1	0.9
CNB	2	(First 2 stages Portion of CN 1)					..	...	0.50	0.30	0.13	8.05	240	4.35	4.05	4.50	79.5	1.3
CNB	3	(First 2 stages Portion of CN 1)					..	...	0.75	0.55	0.17	7.95	330	4.60	4.30	4.80	81.7	1.1
CBB	1	(First 2 stages Portion of CB 19)					..	...	0.40*	0.20	0.08	8.00	240	5.00	4.50	5.25	83.2	1.1‡‡
CNBB	1	(First 3 stages Portion of CNB 3)					..	...	0.40*	0.20	0.08	7.95	240	5.00	4.50	5.25	84.2	0.8‡‡

* Temperature 40 deg. C, (±1).
** Includes C_a $(OH)_2$ used in making bleach liquor.
‡ 25 Days.
‡‡ 16 Days.

TABLE III.—SUMMARY OF BLEACHING AND TESTING DATA

Number	Chemicals added basis pulp: Cl, %	Ca(OH)2, %	NaOH, %	Brightness, G.E. reflection meter, points	Pulp loss* due to bleaching, %	Strength values at 300 cc. freeness,**: Burst, pt./lb./rm.	Tear, g./lb./rm.	Double folds
Southern Gumwood Sulphate								
509	..... Unbleached pulp					1.19	1.96	2550
B 7	4.4	5.2	...	70.2	...	1.00	1.86	1000
B 13	3.8	4.4	...	65.6	4.50	1.00	1.89	1250
C_a 9	2.7	..	...	43.1	3.15	1.05	2.06	1900
C_aB 22	4.6	2.6	...	80.8	5.65	1.06	1.85	950
C_aNB 6	4.6	2.2	2.00	81.1	4.60	1.06	1.78	900
C 10	3.9	3.9	...	62.5	4.80	1.07	2.01	1750
CB 19	4.6	4.8	...	79.8	5.35	1.06	1.88	1150
CNB 3	4.6	4.8	2.00	81.7	5.70	0.97	1.98	700
CBB 1	5.0	5.3	...	83.2	...	...	...	....
CNBB 1	5.0	5.2	2.00	84.2	...	...	...	....

* These figures represent material actually dissolved.
** Green slowness tester was used.

commercial operation of continuous flow single stage chlorination for semibleached grades in that the 5-minute residual constitutes an excellent operating guide to the control of the rate of chlorine flow. By maintaining a uniform residual the brightness of the bleached pulp can be kept uniform and the residual chlorine at the end can be kept within desirable limits. Even variations, within reasonable limits, in the chlorine demand of the pulp do not materially interfere with that method of control. Extensive laboratory and mill experience with a variety of pulps leads to the conclusions that under uniform conditions of time, temperature and consistence chlorination to a definite residual at the end of a fixed preliminary period brings the pulp to a definite and nearly uniform bleachability.

Two-Stage Procedures

"All-acid" Chlorination Followed by Hypochlorite ("C_aB")

Both economy of chemicals and quality of product may be affected by the proportioning of the chlorine between the stages of any two-stage procedure. Figure 5 shows the relation of the chlorine consumed to brightness by varying the proportion of chlorine used in the first stage of a procedure consisting of an "all-acid" chlorination followed by a hypochlorite bleach. Curve "C_aB" in Figure 2 shows the relation for another proportioning between stages.

A brightness of approximately 80 was obtained with a total chlorine consumption of 4.0 to 4.2% so long as the consumption in the first stage was between 2.3% and 3.5%. It is evident, however, that there is a minimum consumption in the first stage below which it becomes impracticable to attain the brightness of 80 in the hypochlorite stage. When only 1.2% chlorine was consumed in the first stage the brightness did not reach 75 even with a total consumption of over 4.5%. Furthermore the rate of improvement in brightness had become greatly reduced.

When the pulp was chlorinated with 2.30 to 2.55% and bleached to 80.8 brightness with a total of 4.15% chlorine consumed ("C_aB22") and the strength of the bleached pulp compared with that of the chlorinated pulp (Fig. 6) it is seen that the hypochlorite reaction has caused no lowering of the Mullen but has resulted in a material drop in both tear and fold

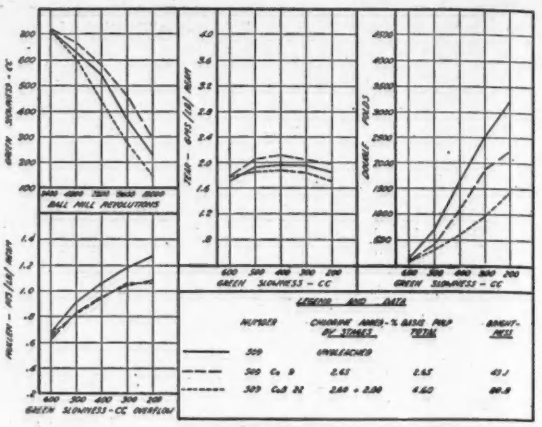

Fig. 6

Strength and Freeness of the Pulp after Each Stage of Two Stage "All-Acid" Chlorination—Hypochlorite Procedure

"Chlorination with Alkaline Oxidation Phase" Followed by Hypochlorite ("CB").

The proportioning of chlorine between stages of a two-stage procedure consisting of chlorination fol-

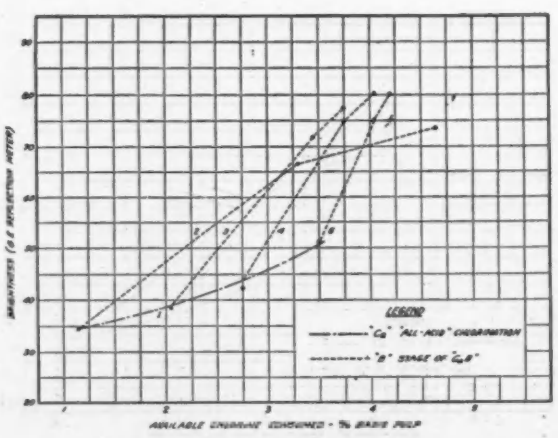

Fig. 5

Effect of Distribution of Chlorine between an "All-Acid" Chlorination Stage and a Hypochlorite Stage in a Two Stage Procedure on the Relation of Chlorine Consumed to Brightness

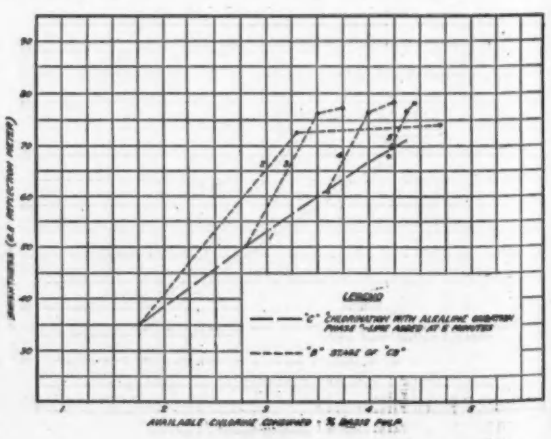

Fig. 7

Effect of Distribution of Chlorine between a "Chlorination with Alkaline Oxidation Phase" and a Hypochlorite Stage in a Two-Stage Procedure on the Relation of Chlorine Consumed to Brightness

lowed by a hypochlorite bleach has a greater effect on the economy of chemical consumption when the first stage is "chlorination with alkaline oxidation phase" than when it is an "all-acid" chlorination. Reference to Fig. 7 indicates that a brightness of 80 was obtained with 4.3% total chlorine provided about 3.6% was consumed in the first stage. Consumption of too little chlorine in the first stage resulted in a failure to reach a brightness of 75 even with a total consumption of 4.7% and the rate of improvement in brightness with increasing chlorine consumption had become very low. Consumption of too much chlorine in the first stage resulted in a very easy bleaching chlorinated pulp but the economy of total chlorine consumed became low.

When the pulp was chlorined with 3.8% chlorine and brought to a brightness of 80 with a total of 4.3% chlorine ("CB" 19) the strength of the bleached pulp as compared with that of the chlorinated pulp (Fig. 8) was lower in tear and fold but practically unchanged in burst.

Comparison of the Two-Stage Procedures

One test was made with each of the two-stage procedures in which the same total chlorine was added ("C_aB"22 and "CB"19). In the "C_aB" procedure the total chlorine consumption was slightly lower, the lime consumption very materially lower, the brightness slightly higher and the strength (tear and fold) slightly lower. The differences, except for the lime consumption, are probably not significant. It is noteworthy that by either procedure of only two stages a brightness of 80 was readily obtained (see Tables II and III and Fig. 9).

Three- and Four-Stage Procedures

Introduction of a "Hot Caustic Extraction" between Clorination and Hypochlorite Stages

Introduction of a hot caustic extraction following the "all-acid" chlorination of two-stage "C_aB" procedure ("C_aNB") resulted in a reduction in the chlorine consumed without materially affecting the brightness or strength of the product (see Table III and Figs. 5 and 10). The saving of 0.5% chlorine was more than offset by the 2% of NaOH (basis pulp) used to say nothing of the additional steam required for the hot extraction. The stability of the brightness was apparently improved as indicated by the small loss in brightness of the dry sheets of the pulp kept in the dark for a period of 14 days.

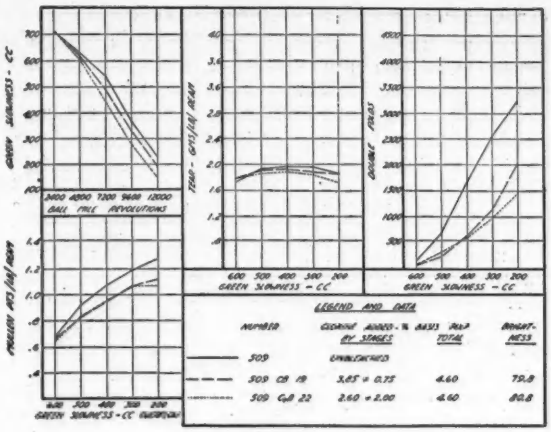

Fig. 9

Strength and Freeness of Pulps Bleached by Two Kinds of Two Stage Procedure

Introduction of a hot caustic-extraction stage following a "chlorination with alkaline oxidation phase" of two-stage "BC" procedure ("CNB") resulted in no change in consumption of chlorine or lime but in a small improvement in brightness and tearing resistance and in a small reduction in burst and fold (*see* Table III and Figs. 8 and 10). The stability of the brightness was apparently improved (*see* Table II).

Addition of a Second Hypochlorite and a Hot Caustic Extraction to a Two-Stage Procedure

To the two-stage procedure consisting of "chlorination with alkaline oxidation phase" and a hypochlorite ("CB") was added a second hypochlorite making a three-stage procedure ("CBB"). The consumption of 0.2% chlorine in the third stage improved the brightness to 83.2 from 79.8.

The further introduction of a hot caustic extraction immediately following the chlorination making a four-stage procedure ("CNBB") still further raised the brightness (to 84.2) and without increase in chlorine consumption indicated some improvement in the stability of brightness. No strength tests were made on either of those pulps.

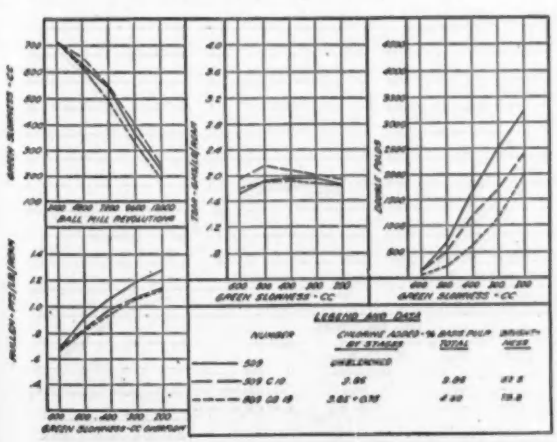

Fig. 8

Strength and Freeness of the Pulp after Each Stage of Two Stage "Chlorination with Alkaline Oxidation Phase" Hypochlorite Procedure

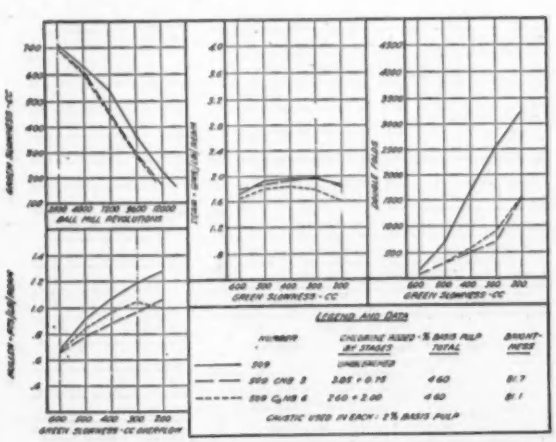

Fig. 10

Strength and Freeness of Pulps Bleached by Two Procedures Having Hot Caustic Extraction Stage

Appraisal of the Hot Caustic Extraction

For the sulphate pulps of coniferous origin hot caustic extraction is generally recognized as an essential part of any bleaching procedure that must be depended on to produce reasonably stable brightness in excess of about 75. For the gum sulphate, however, insofar as the experiments with this particular sample can be taken as typical, it would appear that a hot caustic extraction is not essential even for a brightness well in excess of 80. In fact its use may be expected to increase the cost of operation and perhaps to decrease the strength of the pulp.

It should not be overlooked that in commercial operations it is sometimes the practice to run the pulp mill and bleachery for alternate periods on pine and on gumwood. Some of the cooking residues from the pine may, during the early part of the gum runs, be carried over in the black liquor to the gum pulp and necessitate the use of a hot caustic extraction for their removal from the gum pulp. Such a situation would cause no difficulties in a bleachery already equipped with caustic stage facilities and would involve nothing more than minor operating changes.

Planning a Bleachery for Gumwood Sulphate

Any bleachery adequately equipped for bleaching pine sulphate will be more than adequate for gum pulp. No special consideration is required therefore in designing a pine bleachery to make it adaptable to gumwood pulp.

In planning for a bleachery in which gumwood and similar tannin free pulps are to be used exclusively fairly simple procedures can be considered. For a brightness up to 60 or 65 a single-stage hypochlorite will probably be found adequate. For a brightness between 60 and 75 it will be desirable to provide for a two-stage procedure consisting of chlorination followed by a hypochlorite bleach. The type of chlorination is of minor significance for this kind of pulp.

For a brightness between 75 and 85 it will be found practicable to use a three stage procedure consisting of "chlorination with alkaline oxidation phase" followed by two hypochlorite stages. There is nothing in the results thus far obtained in this investigation to indicate the most desirable procedure for brightnesses appreciably in excess of 80.

Paper—The Lifeblood of Civilization

In its effort to contribute to the public relations program of the pulp and paper industry the Technical Association of the Pulp and Paper Industry has distributed more than 85 thousand copies of Paper—The Lifeblood of Civilization.

This very interesting booklet was prepared primarily to maintain morale within the industry. It was felt that every employee of a mill or converting plant should be informed about the important part played by paper in the civilian economy and the war effort.

Although the demand for this publication has been good, a relatively small proportion was distributed to the industry's employees. The greater proportion was purchased by converting mills and merchants for distribution to customers and users of paper. A copy was sent to each mill in the United States, to each member of the Technical Association and to members of the House of Representatives and the U. S. Senate as well as to a large number of public authorities.

The Technical Association still has a number of copies available which should be distributed to mill employees and others. Copies may be obtained (at 10 cents per copy for lots of ten or more) from R. G. Macdonald, secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York. The distribution of this 24-page booklet offers every company interested in the general welfare of the paper industry a real opportunity to do a profitable public relations job—a job that needs to be done to promote the prestige of the industry and its products in the minds of the public, including the employees of every company interested in the sale of paper.

TAPPI Notes

A feature of the fall meeting of the Technical Association of the Pulp and Paper Industry when it meets at the Statler Hotel in Boston (Sept. 29-Oct. 1) will be the participation of the armed forces. The U. S. Quartermaster Corps, Subsistence Research Laboratory, will be represented by Capt. Robert Melson who will talk on Ration Packaging Problems. The Laboratory also expects to put on an interesting exhibit of packages.

Norman J. Stein was recently appointed treasurer of the Merrimac Paper Company, Lawrence, Mass.

Stanley Fifield, formerly of the Dexter Sulphite Pulp and Paper Company, is now an inspector for the Scott & Williams Manufacturing Company, Laconia, N. H.

A wood products research laboratory is to be built by the Weyerhaeuser Timber Company at Longview, Wash., with a program to develop new products and processes, utilization of raw materials and better utilization of all timber resources. Clark C. Heritage, technical director of the Wood Conversion Company, Cloquet, Minn., and former president of the Technical Association of the Pulp and Paper Industry, will have charge of the laboratory, the largest of its type in private industry.

Richard J. Murtaugh, formerly of the Taggert Corporation, is now chemist for the Radford Ordnance Works, Radford, Va.

Eugene E. Radabaugh, formerly of the Champion Paper and Fibre Company, is now research chemist for the Crossett Paper Mills, Crossett, Ark.

Raymond J. Lavin, U.S.N.R., and Miss Marie Crane were married at Lawrence, Mass., on July 16. Mr. Lavin, a petty officer in the Navy, was formerly employed in the laboratory of the Merrimac Paper Company.

F. J. Sebeste, formerly of the National Biscuit Company paper mill, is now a service engineer for Infilco, Inc., Chicago, Ill.

The Greater Boston Paper Associates will have its next golf tournament at the Oak Hill Country Club, Fitchburg, Mass., at 1 P. M., Friday, August 14. The G.B.P.A. is an informal organization of men connected with or selling products to the paper mills in and near Boston who are arranging to get together for golf and social purposes during the War period. Joe Cronin of the Cheney-Bigelow Wire Works is heading up the arrangements for the Fitchburg meeting. Anyone interested in participating will be welcome. The last get-together was held on July 10th at the Andover (Mass.) Country Club when Art Perry won the low gross and Don Hall the low net. Forty golfers teed off at Andover.

Chemical Character of Water Available for Pulp, Paper, and Paperboard Manufacture in the United States*

By W. D. Collins[1]

Public Supplies

Because the quantities of water required by units of the pulp, paper, and paperboard industry are of the general order of magnitude of the quantities (and in many cases much larger) required for public water supplies it is practicable to base a discussion of the chemical character of water available for pulp and paper manufacture in the United States on the available information about the chemical character of the waters in actual use for public supplies throughout the United States. Reasonably complete data on the subject are to be found in Water-Supply Paper 658, "The industrial utility of public water supplies in the United States, 1932", by W. D. Collins, W. L. Lamar, and E. W. Lohr. The heart of this report is a table which gives analyses of the mineral content of some 670 public water supplies which serve about 57,000,000 consumers. The analyses are intended to represent water delivered to consumers, but for most of the supplies there is little difference in concentration and character of dissolved mineral matter between the finished waters and the waters before treatment. The report gives analyses of the untreated waters for nearly all the places where there is any considerable change in composition, as by softening. Of the 56,700,000 consumers whose supplies are represented in the report about 25,600,000 are represented fairly well by one or another of the 5 typical analyses in Table II. Table I shows the number of places out of a total of 670,

TABLE I.—PUBLIC WATER SUPPLIES REPRESENTED BY 5 TYPICAL ANALYSES

Analysis	Number of supplies	Number of states	Population supplied
1	131	25	11,170,968
2	75	29	11,581,024
3	47	16	2,153,459
4	19	10	600,785
5	8	3	128,583
Total	280	83	25,634,819

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 16-19, 1942.

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[1] Chemist in Charge, Quality of Water Division, U. S. Geological Survey, Washington, D. C.

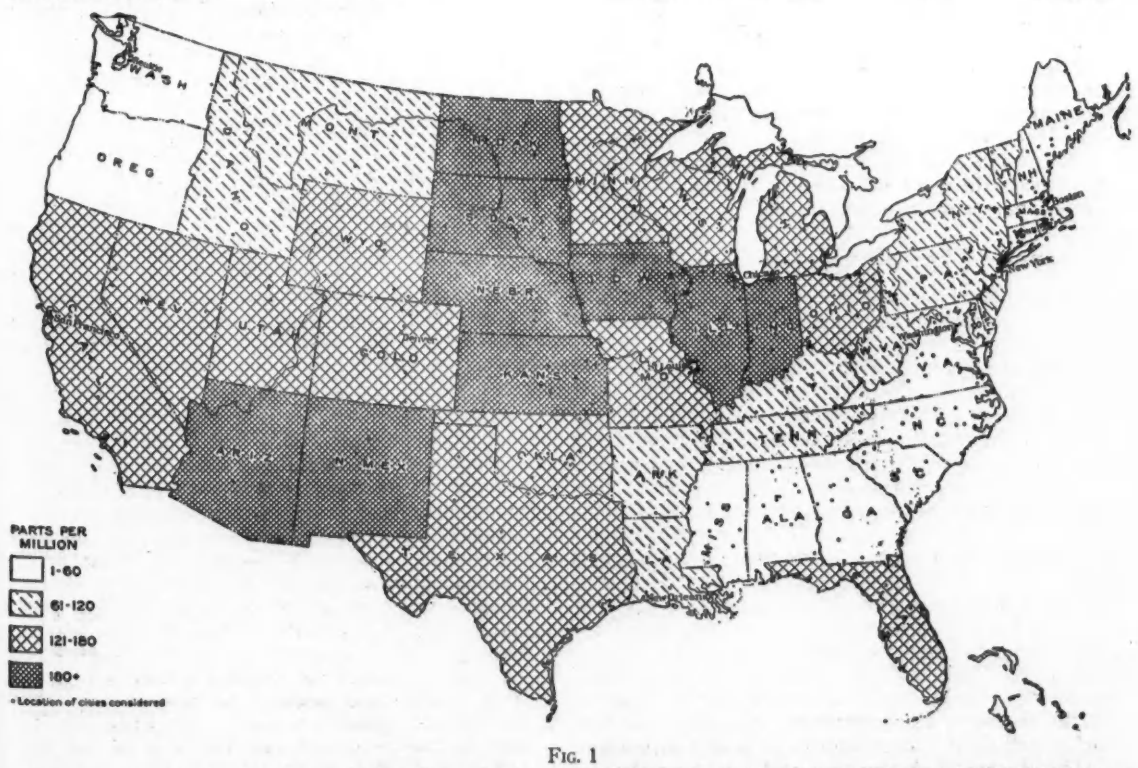

FIG. 1

Weighted Average Hardness, by States, of Water Furnished in 1932 by Public Supply Systems in over 600 Cities in the United States

and the number of consumers represented by each of the 5 typical analyses which are given in Table II.

Analyses 1 and 2

Analysis 1 is for the supply used by about 4,000,000 consumers in the city of New York. Analysis 2 represents Niagara Falls—not one of the very large cities. The Niagara River is, however, the outlet towards the sea of Lakes Erie, Huron, and Michigan, which have practically the composition shown by the analysis of Niagara River. These lakes supply Milwaukee, Chicago, Detroit, Cleveland, Buffalo, and other communities that make up a total of 9,124,608 consumers served with water of the composition shown by Analysis 2.

TABLE II.—TYPICAL ANALYSES OF SURFACE AND GROUND WATERS

(Parts per million)

	1	2	3	4	5
Silica (SiO_2)	2.4	12	10	9.4	22
Iron (Fe)	0.14	0.02	0.09	0.2	0.08
Calcium (Ca)	5.8	36	92	96	3.0
Magnesium (Mg)	1.4	8.1	34	27	2.4
Sodium (Na)	1.7	6.5	8.2	183	215
Potassium (K)	0.7	1.2	1.4	18	9.8
Bicarbonate (HCO_3)	14	119	339	334	549
Sulphate (SO_4)	9.7	22	84	121	11
Chloride (Cl)	2.0	13	9.6	280	22
Nitrate (NO_3)	0.54	0.1	13	0.2	0.52
Total dissolved solids	31	165	434	983	564
Total hardness as $CaCO_3$	20	123	369	351	17

1. Catskill supply of New York City.
2. Niagara River, filtered for public supply of Niagara Falls, N. Y.
3. Wells 30 to 60 feet deep used for public supply of Dayton, Ohio.
4. Well 2,090 feet deep used for public supply Maywood, Illinois.
5. Well 330 feet deep at Smithfield, Va.

Follows Distribution of Rock Material

Because the mineral constituents dissolved in water in its natural state come from the rocks and soil the distribution throughout the country of waters of different types necessarily follows the distribution of the rock materials. Requests are frequently received for a map that will show the probable character of water in all parts of the country. One difficulty in the way of preparing any such map is that at any particular place waters of widely different composition may be found. A surface water from a comparatively small drainage area will have its composition determined by the character of the rock and soil in that area. As the drainage area becomes larger and tributaries from different kinds of rock enter the stream the composition of the water will change. Therefore, the surface water available at a particular place will have its composition determined not by the rocks at the place where the sample is taken but by the average composition of the rocks throughout the area drained by the stream. At one town in Virginia, there are two streams about three miles apart of which one carries in solution about twice as much dissolved mineral matter as the other, the reason being that they are approaching one another at this three-mile distance from drainage areas which have rocks of different character and solubility.

The composition of well water at any place may depend upon the depth of the well. In general the deeper waters carry much more dissolved mineral matter than the shallow waters but at many places there are waters at depths of from 600 to 1000 feet which carry much less dissolved mineral matter than water from a depth of 100 or 200 feet.

Hardness Map

A map that has been widely used to show the general chemical character of waters throughout the United States is the hardness map (Fig. 1) from Geological Survey Water-Supply Paper 658. This map is correct for the data included. The states are shaded according to the weighted average hardness of waters of the large public supplies in the states. The shading for some states might be changed by including more places. The average hardness figures on which the shadings on the map are based are representative of general conditions in the states. In some of the states the range of hardness for the supplies considered is only moderate; in other states the range is large. The places whose supplies were used for the computation of the weighted averages include no supply with hardness of over 60 p.p.m. for the states of Connecticut, Maine, Oregon, or Rhode Island. The range in hardness of supplies used for computing the average for Florida is from 7 to 520 p.p.m.; for Oklahoma the range is from 35 to 626 p.p.m. Of the 15 places in Oklahoma for which the weighted average hardness was calculated, only three had supplies with hardness in the range from 121 to 180 p.p.m. represented by the shading on the map. The hardness of six supplies was less than 121 p.p.m. and the hardness of the other six supplies was more than 180 p.p.m.

Reasonably Reliable in Spite of Defects

Notwithstanding all the defects and deficiencies of the hardness map it still shows in a fairly reasonable fashion the general character of the waters throughout the United States as regards their hardness. No one need be misled through the use of the map if its limitations are kept fairly in mind.

Water Temperature

Although not a chemical characteristic the temperature of water is sometimes of significance in the selection of a source for an industrial water supply. A report (Water-Supply Paper 520-F: Temperature of water available for industrial use in the United States, by W. D. Collins, pp. 97-104, 1925) on the temperature of water available for industrial use calls attention to the generally recognized facts that ground water is usually reasonably constant in temperature and that surface waters vary in temperature with the seasons.

Temperature measurements from various sources indicate that the mean monthly temperature of surface waters is likely to be within a few degrees of the mean monthly air temperature. Maps based on these assumptions show the approximate constant temperature of ground waters at depths of from 30 to 60 feet and the approximate mean monthly temperature of surface waters in July and August when the surface waters usually have their highest temperatures.

Publications of Geological Survey

The publications of the Geological Survey are distributed through sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. The Survey does not make examinations, assays, or analyses for private individuals or corporations and does not give technical advice on specific problems. It is, however, regular practice to point out sources of information as to the quantity and quality of water available for industrial use throughout the United States, and to indicate, so far as possible, the adequacy of the available information.

Index, Technical Section, Paper Trade Journal Volume 114, January to June, 1942

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The page numbers in the following index refer to the continuous pagination of the *Technical Section* and not to the pagination of the individual numbers of the PAPER TRADE JOURNAL. Author entries are printed in capitals.

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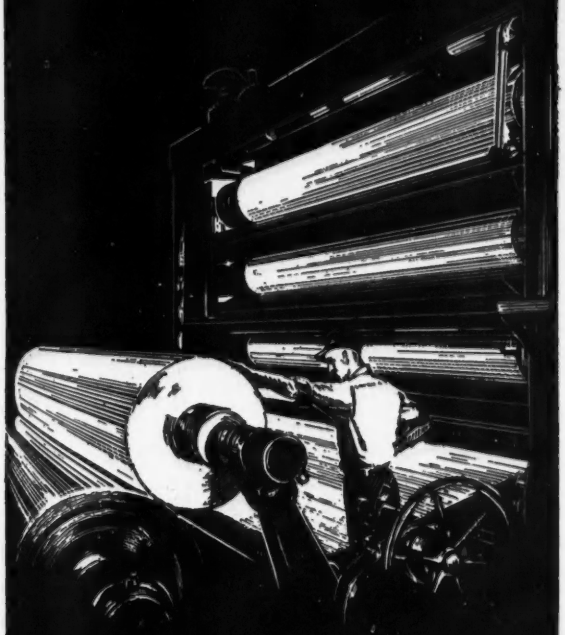

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IMPORTS OF PAPER

NEW YORK IMPORTS

WEEK ENDING AUGUST 1, 1942

SUMMARY

Newsprint .....2139 rolls
Book .....248 bbls.

NEWSPRINT

Clinton Paper Corp. ——, ——, ...475 rolls
——, ——, ——, ...349 rolls
International Paper Co. ——, ——, ...1315 rolls.

BOOK PAPER

Bowater Paper Co., ——, ——, ...248 bdls.

WOODPULP

——, ——, ——, ...2205 bls. sulphite

Sidney Roofing Starts Third Machine

VANCOUVER, B. C., August 1, 1942—The Sidney Roofing and Paper Company has now placed a third cylinder machine in operation at its main plant at Victoria, B. C., to increase its production of roofing felts, building papers and box boards. The press, drier, calender and winder sections were purchased from a mill in eastern Canada, dismantled, shipped in ten carloads, and rebuilt in the company plant. The vat section was designed for an eventual four cylinders machine, one of which is in operation at present. All repairs and reconstruction was completed in the company's shop and in local machine shops.

The new machine is housed in a new concrete and brick structure 260 by 50 feet of two floor construction. The lower floor contains all the drive equipment of the cylinder machine, stock chests, jordans, pumps, and various auxiliary services. A new transformer vault for incoming 4000 volt service is also on this floor.

The machine has been equipped with Johnson Drier Joints, Midwest Fulton Drainage System and Foxboro Temperature Control. A hot air system will be installed to increase drying capacity. Earlier enlargement of the steam plant allowed adequate supply of steam.

Consolidated Erects Plaques

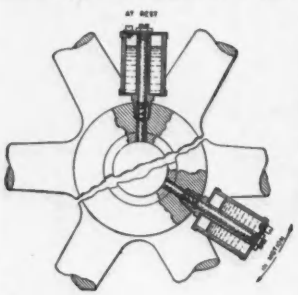
Consolidated Water Power and Paper Company is erecting a plaque in each of its mills at Wisconsin Rapids, Biron, Stevens Point and Appleton, Wis., on which are inscribed the names of all men who have left for war service. The plaques are of black walnut with inlay, made by William J. White, Consolidated cabinet maker, and are 38 by 68 inches in size. There are 129 names at Wisconsin Rapids and 42 at Biron, on the plaques mounted thus far. One gold star appears, that of Willard Rath, whose pursuit plane crashed in California.

Reports Show Employment Drop

The paper box, bag and tube industry in Illinois—68 industries reported—indicated to the Department of Labor a decline of 5.4% in employment as compared to April 15 as well as a decline of 5.9% in payrolls over the same period. The 48 other paper goods industries reporting showed a 1.6% decline in employment and 1.7% increase in payrolls during the same comparative period. Average weekly earnings in the former are now running at $29.03 and $29.71 in the latter classification.

New Loose Pulley Oiler

For use on loose pulleys, idler pulleys, clutches, eccentrics, and similar rotating machine parts, a new wick type lubricator has been announced by the Oil-Rite Corporation. It is designed to deliver a constant, positive, and regulated amount of filtered oil to shaft or bearing while pulley is in operation, and to prevent oil waste when pulley is idle. The reserve supply of oil is always visible.



This new Oil-Rite Loose Pulley Lubricator consists of a simple glass oil reservoir, mounted on a hollow metal stem. This stem is sealed from the oil in the reservoir, except for two small ports at the very top. Inside the stem is a cylindrical felt wick, which extends through the pulley hub to rest directly on the shaft. A compression spring is wrapped around the wick to hold it firmly in position against the shaft.

As the pulley rotates, and the lubricator with it, centrifugal force throws the oil against the top of the reservoir, and into the two ports in the stem. These admit oil to the wick, which filters out all dirt and sediment, and conducts the oil directly to the face of the shaft.

The manufacturer points out that oil flow through the wick results partly from capillary attraction, partly from the suction caused by the drag of the wick on the shaft. Introducing this latter principle, it is claimed, insures these two effects: (1) positive lubrication while pulley is operating; (2) no drippage or oil waste when pulley is idle.

The amount of oil to be delivered to the shaft or bearing is regulated by means of a small plug which controls the area of the oil ports. Reservoir is filled from the top, quickly and easily. Five standard sizes are available—capacities from ¼ to 2½ ounces—for standard tappings from ⅛ to ¼ inches. Complete details for all applications can be secured by writing to the Oil-Rite Corporation, 3466 S. 13th street, Milwaukee, Wis.

H. K. Clark Drafted by Navy

H. K. Clark, vice president and general manager of Norton Company, who recently returned to Worcester after nine months service as a Dollar-a-Year man in the OPM and WPB, lastly as assistant deputy director of the Division of Industry Operations, is back in the Capitol. This time he has been "drafted" by the Navy and with the rank of Lieutenant Commander is a member of the Army and Navy Munitions Board.

Eleven Storrs & Bement Men in Service

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 3, 1942—Storrs & Bement Company now has 11 men in the service. The latest are Robert Hutchins, a salesman, who has been called to duty in the U. S. Signal Corps, and Clifton Bryant, Maine representative of the company, who is a cadet in the Army Air Force.

UNITED PIGMENTS

Pure Titanium Dioxide

UNITANE-O

A brilliantly WHITE, pure, fine titanium dioxide possessing excellent . . .

- **OPACITY**
- **BRIGHTNESS**
- **DISPERSION**

Suitable for ALL types of paper ranging from thin printing papers and waxing tissues to coated book and magazine stocks.

UNITANE O—110 was especially developed for paper pigmentation. Its excellent dispersion in water promotes good retention and excellent sheet formation. As a component of the beater furnish, it produces *whiter* sheets of *great brilliance*, and superior printing qualities.

SAMPLES of UNITANE O-110 will be sent promptly upon request.

UNITED COLOR & PIGMENT

UNITED COLOR AND PIGMENT CO.

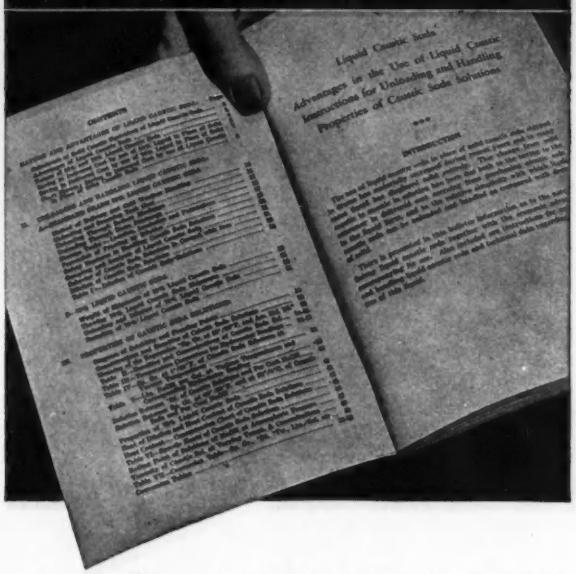
DIVISION OF INTERCHEMICAL CORPORATION

NEWARK, NEW JERSEY

SALES OFFICES IN PRINCIPAL CITIES

BOOK OF THE YEAR

...To The Man Who Needs Down-to-Earth Information On Handling Caustic Soda!


Liquid Caustic Soda
Advantages in the Use of Liquid Caustic
Instructions for Unloading and Handling
Properties of Caustic Soda Solutions
INTRODUCTION

If you are a technician or plant operator who is now "taking over" an assignment which necessitates a more specific knowledge of Caustic Soda than you previously required, *then write today for Solvay Technical Service Bulletin No. 6.*

This bulletin contains time-saving, factual information from which all sales talk has been eliminated. It is full of important tables, charts and other data on the handling of Caustic Soda. It is information which goes straight to the point... helps you improve efficiency, reduce man hours and increase production speed.

Solvay Technical Service Bulletin No. 6 on Liquid Caustic Soda is one of the series of Solvay Bulletins which are constantly being revised on the basis of new findings. For years this technical literature has had the recognition of plant operators, engineers and scholars who realize that such vital operations data concerning alkalies can only originate out of the breadth of accumulated experience Solvay has gained as America's oldest and largest manufacturer of alkalies.

If you don't use Caustic Soda, then send for any of the OTHER SOLVAY BULLETINS listed below, which pertain to your work.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

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Use and Handling of Caustic Soda • Analysis of Alkalies • Soda Ash Handling • Alkalies and Chlorine in Water Treatment • Analysis of Liquid Chlorine and Bleach • Water Analysis • Calcium Chloride in Refrigeration Road Surface Stabilization • Analysis of Calcium Chloride and Limestone

New York Paper and Pulp Market Review

Paper and Pulp Markets Dull — Paper Board Prices Well Below Ceilings With Local Quotations On News Board At $40 Per Ton— Old Waste Paper Prices Soft — Buying of Roofing Rags Fair.

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1942.

Wholesale buying in the paper market continues to reflect the decline and relatively low rate of activity reported in most major markets. Current reports from many manufacturers' representatives, jobbers, and general paper merchants indicate the expectation that sales volume during this month may decline to the lowest level in some years.

The index of general business activity for the week ended July 25 rose to 131.8%, from 130.4% for the preceding week, compared with 131.8% for the corresponding week for 1941. Paper board production was 4.9% lower.

Paper production for the week ended July 25 was estimated at 80.2%, compared with 101.9% for 1941, with 89.9% for 1940, with 81.7% for 1939, and with 77.1% for the corresponding week for 1938.

Paper board production for the week ended July 25 was 74.0% compared with 92.0% for 1941, with 74.0% for 1940, with 70.0% for 1939, and with 64.0% for the corresponding week for 1938.

The drastic discontinuance of the production of a wide variety of non-defense products, is now beginning to be felt in the paper industry and very widely in many other industries and trades. Although large stocks of manufactured goods for civilian consumption are on hand, and no shortages are expected to be experienced this year, the current trend indicates the diversion of so much material and labor to speed up the production of essential war materials, that the longer view prospect for general business becomes correspondingly less encouraging.

Prices in the paper market, in general, are less firm. Reports indicate increasing sales well under ceiling prices, as the law of supply and demand is working under the OPA maximum level.

The paper board market is reported as very dull this week. Prices in the metropolitan area are substantially below ceiling prices. Current quotations on chip are around $40 per ton; on single Manila-lined chip, $57.50 per ton. Prices of $70 per ton on patent coated are also reported.

The newsprint price is stable at $50 per ton.

Wood Pulp

The chemical wood pulp market is dull. Prices are unchanged. The trend in production and consumption is now downward, with the expectation of some improvement next month. Stocks are reported adequate.

Rags

Mill buying of old cotton rags is currently reported as fair. Limited demand for cotton cuttings continues. Mill inventories are now reported ample and not much improvement in this market is expected until paper production rises to a higher level. Prices are widely reported below the OPA ceiling.

No important change in prices or demand in scrap bagging has been reported this week. Mill buying is limited. Some current reports indicate supplies are relatively small, with good stocks of materials at the mills.

Old Waste Paper

The old waste paper market is dull, with relatively large stocks of materials at the mills. Prices continue little changed and are substantially below the ceiling level on major grades of paper stock.

Twine

No important change in prices has been reported on standard grades of twine this week. Demand is rather slow at this date. The critical shipping situation and the war, continues to increase the difficulty of obtaining imported fibers. No improvement or change in this market is expected in the near future.

Exhibit to Feature TAPPI Fall Meeting

The pulp, paper and converting industries at War will be the keynote of the fall meeting of the Technical Association of the Pulp and Paper Industry when the association meets in Boston, Mass., at the Statler Hotel from September 29 to October 1, 1942.

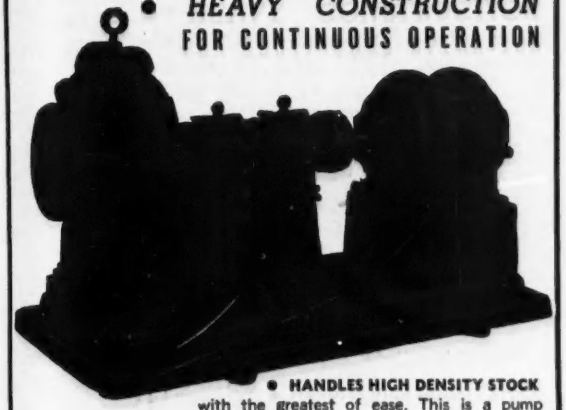
So great is the interest at the present time in making containers and other materials from paper to release the critical metals, etc. for war uses the Technical Association is planning to devote a large part of its fall meeting program to a thorough consideration of the progress being made and the problems that are involved.

A strong program is being developed in which the armed forces, food dehydrators and others will participate. To better serve the industry and the public plans are under way to have a sizable exposition of the products that have been developed to meet the demands of the emergency.

The Technical Association will supply exhibiting space without charge to any organization or company that may be interested in showing new paper products that are helping to win the War and to take care of the civilian needs through the substitution of paper for products formerly made of other materials. Every branch of the industry is doing something out of the ordinary to meet the emergency demands. New containers and wraps are being made, new surface coatings, new closures. The writing paper mills are furnishing stationery, the book paper mills are supplying papers for institutional booklets illustrating how various industries are helping out. All of these products should be displayed not only to the members of the Technical Association but to the public—the great user of paper who will be invited to visit the show.

Any trade association or company wishing to exhibit or anyone having suggestions as to what should be exhibited should write immediately to R. G. Macdonald, Secretary of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York, N. Y.

• HEAVY CONSTRUCTION FOR CONTINUOUS OPERATION



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Write for complete description of its rugged construction

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ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

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Relining can usually be done in your plant by your welders without serious work interruption. Write for Blue Prints of suggested procedure.

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THE CORROSION RESISTANT ALLOY

CAST • ROLLED • FABRICATED

for all equipment exposed to corrosion by sulphite acids

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"READY DRESSED" MILL COGS

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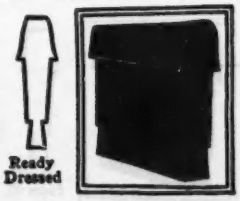
THE MOST ECONOMICAL FILLING THAT CAN BE PUT IN A MORTISE WHEEL



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Faster, Better, Economical Processing

WALDRON MACHINERY

PRINTING GUMMING COATING CREPEING EMBOSSING DRYING LAMINATING IMPREGNATING

JOHN WALDRON CORPORATION—New Brunswick, N. J.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1942.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2.25 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 14 cents per pound; 80-100 mesh, at 14½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 10 cents per pound, c.i.f. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported fair at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market strong. Government demand is reported heavy during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with higher prices on some grades. "G" gum rosin is currently quoted at $3.01 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.01 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.35 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand moderate for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported fair for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported light for the current week. The commercial grades are currently quoted at from $1.15 to $1.25; iron free at from $1.75 to $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	$5.00	@	—
No. 1 Wrapping	4.75	"	—
Standard Wrapping	4.50	"	—
Standard Bag	4.125	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

Delivered in Zone 1

No. 1 Glossy Coated	$13.65	@$15.50
No. 2 Glossy Coated	12.40	" 14.00
No. 3 Glossy Coated	11.60	" 13.25
No. 4 Glossy Coated	11.15	" 12.75
No. 1 Antique (watermarked)	10.25	" 11.75
No. 2 Offset	9.60	" 11.00
A Grade E. F.	9.35	" 10.75
A Grade S. & S. C.	9.60	" 11.00
B Grade E. F.	8.85	" 10.25
B Grade S. & S. C.	9.10	" 10.50
C Grade E. F.	8.55	" 9.75
C Grade S. & S. C.	8.80	" 10.00
D Grade E. F.	8.25	" 9.50
D Grade S. & S. C.	8.50	" 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	64.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1.	8.00	@ 8.25
Silesias No. 1	4.50	" 4.75
New Unbleached	8.00	" 8.25
Blue Overall	5.75	" 6.00
Fancy	3.00	" 3.25
Washables	2.50	" 2.75
Mixed Khaki Cuttings	2.50	" 2.75
O. D. Khaki Cuttings	3.00	" 3.15

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Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsviken, Sweden

Bleached Sulphite

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Sarpsborg, Norway
Edsvalla, Sweden
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Unbleached Sulphite

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EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

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1 Adjusting or building up sulphite liquor concentration . . .

2 Producing pulp when your acid plant is down for repairs . . .

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HIGHEST QUALITY CLAYS

LUMP and POWDERED } IMPORTED DOMESTIC { CRUDE CRUSHED AIR FLOATED WATER WASHED

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
* Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
Sisal Strings	3.25	"	3.75
Mixed Strings	1.10	"	1.20

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.57½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Mixed Books	1.07½	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	1.75	"	—
Old Corrugated Containers	1.00	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07½	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¾	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¾	"	.02½
Corduroy	.01¾	"	.02¾
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
Paper Mill Bagging	3.00	"	3.25
No. 2 Bagging	1.35	"	—*

* OPA Maximum Price.

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.50	@	5.00
Sisal Rope	4.50	"	5.00
Mixed Rope	1.25	"	1.40
Transmission Rope—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	5.50
Jute Carpet Threads	3.25	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.50	"	—
Scrap Sisal	4.75	"	5.00
Scrap Sisal for Shredding	5.50	"	5.75
Wool Tares—			
Foreign	(nominal)		
Domestic	5.00	"	5.75
Aust. Wool Pouches	5.00	"	5.10
New Burlap Cuttings	5.25	"	5.50
Heavy Baling Bagging	4.75	"	5.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.07	"	.07½
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.08¾	"	.08¾
Underwear Cutters, Bleached	.06½	"	.06¾
Underwear Cutters, Unbleached	6.50	"	6.75
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03¾	"	.04
Red Cotton Cuttings	.03¼	"	.03½
Soft Unbleached	.07½	"	.07¾
Blue Cheviots	.06	"	—
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.04¼	"	.04¾
O. D. Khaki	.04½	"	.04¾
Corduroy	.03½	"	.03¾
New Canvas	.07	"	.07¼
B. V. D. Cuttings	.07¾	"	.08

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.50	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 2 Roofing Rags	1.45	"	—